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ORIGINAL ARTICLES.

PSYCHOLOGY OF THE UNCONSCIOUS.

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II.

IT would be interesting to retrace our steps and show the workings of the Unconscious among the races of Mankind in the evolution of Society, such as the origin and growth of language and religion, institutions of learning, of political constitutions, and municipal and commercial centers; its influence on the incitements, incidents and results of war, as well as conflicts of industry; the rise and fall of nations and peoples, etc.; but to do so would exceed the space to which I have limited this essay. I cannot forego making the remark, however, that the great events of history, events which have made eras and epochs and which have been attributed, by the ignorant and unthinking, to the authority of Providence, or to divine interpositions because they were produced independent of human volition, have been due to the influence of the Unconscious—the power that evolved man in the first place, and compels him to work out a destiny not of his own conceiving. and to carry out a purpose not of his own creating,

It has been observed that "mind is the genius of the world," the creative energy working with an unconscious purpose to a predestined end. The observation was not meant to be confined to the informing conscious mind, but rather to include all mind—the unconscious mind even more than the conscious. The phenomena of conscious mind are confined to a comparatively limited sphere—to man and a few species of animals below him; but the phenomena of the Unconscious are universal, embracing those of the solar system and the actions and interactions between worlds and every species of being upon them. This unconscious creative energy may be especially observed in the phenomena of organic activity, such as reflex movements, conservation and repair of organic beings, instinctive operations; the cell and its functions, of both the vegetable and animal; the movements of gases and fluids, as well as the tiniest molecules of the inorganic kingdom. I have already adduced a little of the great volume of evidence that exists in support of this contention, so far as the animal kingdom is concerned. It remains to cite in its support a little of the evidence afforded by the vegetable kingdom.

The organic activities of the plant are closely allied to those of the animal. The principle of propagation is the same in each, and each exhibits similar purposive acts in furtherance of its designs. Many plants, like certain animals, possess the power of reproducing themselves from a single part, and of repairing wounded vessels. The wonderful psychic activities of the cell are nearly alike in each kingdom. The similarity of the cells of the two kingdoms may be likewise observed in the differentiation of their functions. Every cell is a chemical laboratory in which nutritive material is prepared for building and other purposes of the plant; but what concerns us most, in this connection, is the marvelous fact that "each cell absorbs only those substances which it can make use of, or if it takes up aught else, it sends this on unassimilated." While the most powerful microscope can discern no difference in the constitution of these vegetable cell-organisms, one cell will elaborate wood-fiber, another sap, another starch, etc., from the same fount of nutritive material. I am aware that physiologists have a way of explaining the nutrition and circulation of plants (as also animals) on mechanical and chemical principles. The late Prof. J. W. Draper explained the circulation of the blood in mammals on such principles, and could see no reason for calling in the aid of living or unconscious forces to account for it. But such an explanation does not explain, as Von Hartmann has pointed out. Besides, it robs the facts of their real significance and chiefest glory. The absorption of the cells "takes place rather with selection of direction and material, for otherwise no circulation and no distribution of nutritive matters to different cells could take place." *

The progenitive instinct is possessed by plants as well as animals. Though it is less strongly marked, still the sentiment of motherhood is observed in the plant. Many species of the latter take special care of the seed in budding time, in protecting it against rain and frost, by wrapping their petals around it, or enclosing it by the lips of their corollas. Many plants take this precaution at night to protect the young and tender bud from the dew.

"The *Impatiens noli me tangere* hides even its flowers under its leaves by night." Many plants enclose their young in horny cases, and these again in thorny burrs to preserve them against rapacious birds and insects, and to assure their coming to maturity. Most ingenious of all are some of the aquatic plants to secure the same end. Instance the alga species, the water lily, the crowfoot, the water nut, etc., which send their flowers to the surface of the water for fertilization, and when it is accomplished, draw them to the bottom again. The contrivances to these ends are most ingenious and perfectly adapted

* Philosophy of the Unconscious. II. p. 123.

to meet them, showing design, that while intelligent, is yet unconscious.

Equally significant to the student of psychology are certain phenomena on the part of plants in respect of light. When the infant animal turns its eyes to the light, one does not think the act extraordinary, since it is known to possess sensitive ganglia, and therefore excito-motor reflexes; but the vine is known to be devoid of every rudiment of a nerve, and yet it will manifest the same impulse. I have known the common potato vine, when confined in a dark cellar, to run fifteen or twenty feet across the cellar bottom and climb a wall where a small opening existed and a little light entered. All must have witnessed the struggles of plants confined in the dark to get into the light. Instance the behavior of the sunflower, which will almost break its neck in its eagerness for the sunshine, and the common grapevine, which will invariably twine toward the light. Dutrochet relates that he saw "the leaf of a plant standing in the open air, whose upper surface was covered with a small board, try to withdraw itself from the screen by means which were not always the same, but were always of a kind which must most quickly and easily lead to the goal; thus this happened now by means of a lateral bending of the leaf stalk, now by bending of the same leaf stalk towards the pedicel." Other observers have witnessed similar phenomena. "Knight saw a vine-leaf whose under side was illuminated by the sun, and whose approach to a natural position he had blocked in every way, make every possible attempt to turn to the light the right side, with which it was mainly necessitated to respire. After it had, for a few days, attempted to approach the light in a certain direction, and by bending back its lobes had almost covered its under-side therewith, it spread itself and removed further from the window of the glass house, in order to approach the light in the opposite direction." *

M. Dutrochet relates similar observations, and remarks: "If one sees how many means are here applied to attain the same end, one will be almost tempted to believe there dwells here a secret intelligence which chooses the most appropriate means for the attainment of the end." M. Dutrochet would hardly dare to invest such phenomena on the part of plants with the attribute of intelligence, for such an acknowledgment would carry with it certain other conclusions which would shock the theological sensibilities of our scholastic friends, and yet he was deeply impressed by them. He could not comprehend them, Von Hartmann observes, "because he was not acquainted with unconscious psychical activity."

I have already alluded to the unfailing certainty with which plants select their food. Even in a habitat inimical to them, environed by poisonous substances in solution, they choose only that which is good for them, and eschew that which is bad for them. Their instinct of the whereabouts of water is unerring. In one of my excursions to the country, one dry season, I observed a certain elm which, in search for water, had sent numberless rootlets several rods away to a ditch where there was running water. When I saw that it had not sent rootlets in any other direction for this purpose, I could not but wonder how that tree, consisting to the outward sight of cellulose, sap and chlorophyll only, without a rudiment of nerve cell or nerve substance to hang an instinct, or to affix a reflex impulse upon, knew the existence and direction of a stream of water.

The habits of the trailing and climbing vines show instinctive powers to a degree not inferior to some of the lower species of animals, the annelids, for example. It is interesting to note their circular movements in search of something to climb or wind themselves upon, gradually enlarging their radius until the sought-for object is found. The tendrils then attach themselves, and the plant begins its ascent in a spiral direction, and always in the same direction. Nor can it be deflected from its course, or made to climb in an opposite direction. Certain climbing plants, moreover, make choice of a support. They will not take an inorganic or lifeless thing to climb upon, but always select a green or living shrub, something that they can subsist upon after the death of their roots and they cease to draw nourishment from the earth. Von Hartmann quotes Mohl, to the effect that "if one unrolls a young convolvulus from its support and winds it around again in the opposite direction, it will return into its original spiral direction or will surrender its life in the endeavor. * * * If, however, one allows two such plants mutually to embrace without foreign support, and so to climb by one another's aid, the one voluntarily changes its solitary direction in order to make this mutual embrace possible. * * * Here one finds," says Von Hartmann, "even the variability of animal instinct in the most remarkable form."* Here, at least, is most obvious "purposive action without consciousness of purpose."

The most significant facts of instinctive actions on the part of the vegetable kingdom of any yet referred to may be found in the phenomena of insectivorous plants. The late Mr. Charles Darwin, with characteristic industry, gave this species of the *carnivora* special study, the result of which was embodied in a volume bearing that title. The volume will repay a patient perusal, not only by the botanist, but also by students of psychology.

Mr. Darwin confined his studies on this subject chiefly to the *drosera rotundifolia* (sun dew) and its numerous varieties. The habits of the *Pinguicula vulgaris* and of the *utricularia neglecta*, both insectivorous plants, are only second in interest and significance in connection with the subject of unconscious psychic actions, to the *droseraceæ* All are of exceeding interest; but since I cannot within the limits of a single paper go over the whole subject, and since, also, the *drosera rotundifolia* is best known to the profession, being well-known as a medicine for throat and lung affections,

*Cited from "Philosophy of the Unconscious," Vol. II., p. 135.

*"Philosophy of the Unconscious," II., p. 137.

my observations will be confined to that species. The *drosera rotundifolia* is a perennial plant, growing in mossy, turfy bogs, of but a few inches in height, and is a native of the southern parts of Europe and other places. The scape bears from three to six leaves, some standing vertically, others projecting horizontally, the upper surface of which is studded with what Mr. Darwin calls gland-bearing filaments or tentacles, which he so named from their manner of acting. These glands or tentacles are numerous, each leaf having more than a hundred, at the tip of which there is a minute gland. In one instance Mr. Darwin counted as many as 290 of these hair-like tentacles or pedicels. These glands secret an extremely viscid secretion, "which glittering in the sun, has given rise to the plant's poetical name of sun-dew."

This plant is chiefly carnivorous, and, since it never sleeps, may be said to lie in wait for its prey, which consists of small insects and the seeds and pollen of flowers, or whatever else of an organic nature it is able to seize upon. It does not, like the rootlets of plants in general, go in search of food, but covertly waits, like certain other of the *carnivora* tribe, for such victims as may have the misfortune to fall in its way. It is difficult to imagine a more subtle and ingenious device for catching and devouring small prey than is afforded by this leaf thus constitued and endowed. I cannot do better than to quote Mr. Darwin's account of the manner in which insects and other objects are captured by this plant:

"If a small organic or inorganic object be placed on the glands in the center of a leaf, these transmit a motor impulse to the marginal tentacles. The nearer ones are first affected and slowly bend towards the center, and then those farther off, until at last all become closely inflected over the object. This takes place in from one hour to four or five or more hours. The difference of time required depends on many circumstances, namely, in the size of the object and on its nature; that is, whether it contains soluble matter of the proper kind; on the vigor and age of the leaf; whether it has lately been in action; and, according to Nitschke, on the temperature of the day, as likewise seems to me to be the case. A living insect is a more efficient object than a dead one, as in struggling it presses against the glands of many tentacles. An insect, such as a fly, with thin integuments, through which animal matter in solution can readily pass into the surrounding dense secretion, is more efficient in causing prolonged inflection than an insect with a thick coat, such as a beetle."*

The viscid matter secreted by the little glands referred to possesses the double function of attracting insects and of digesting them. The secretion possesses all the digestive powers of the gastric juice of the higher animals. It will digest seeds, solid particles of meat, and even bone, cartilage and the enamel of teeth. The sensibility of the hair-like tentacles, though nerveless, is greater than that of animal tissue, and the property of irritability is not inferior to that of muscular fiber. And yet it does not possess nervous and muscular tissue, and it is equally devoid of nerve filaments and nerve centers.

To illustrate the high degree of sensibility possessed by the filaments of the leaf of the *Drosera rotundifolia*, Mr. Darwin made experiments with several substances. He found the leaf more sensitive to the presence of phosphate of ammonia than to any other substance. So small an amount as the $\frac{1}{19,700,000}$ of a grain of this salt in solution applied to the leaf was sufficient to cause movements of the tentacles. "A little bit of human hair $\frac{1}{1000}$ of an inch in length and weighing only $\frac{1}{78,740}$ of a grain, though largely supported by the dense secretion, suffices to induce movement."* The leaf is highly sensitive to all nutritive material, but more sensitive to living insects, while it feebly responds and refuses to digest dead or decaying objects. "Even gnats," says Mr. Darwin, "if they rest on the glands with their delicate feet, are quickly and securely embraced." Yet they are insensible to the weight and blows of drops of rain, of which they take no notice.

The same distinguished investigator found that a bit of hair, $\frac{1}{60}$ of an inch in length, was not perceived when placed on the human tongue, and he thought it extremely doubtful "whether any nerve in the human body, even if in an inflamed condition," would perceive so small an object, supported in a dense fluid like the viscid secretion of a drosera gland, and "slowly brought in contact with a nerve." Yet the drosera plant feels it and transmits a motor impulse, thus excited, to a distant point. Such a fact was possessed of profound significance to Mr. Darwin, and he was led by it to declare that "hardly any more remarkable fact than this has been observed in the vegetable kingdom.† He could justly have made the remark stronger, for there is no phenomena more remarkable or more distinctively *mental* than this to be observed among animals as high in the scale of being as the ascidian.

The phenomena of the sleep of plants, which is so conspicuous among certain well-known species, affords another illustration of unconscious purpose. It is impressive to see the clover plant close its leaves at night and open them again to the morning light; and nasturtiums to fold their leaves and droop their heads on the approach of night. I am aware than Linnaeus concluded that this phenomenon of the flowers was largely due to changes of moisture and temperature; but he did not explain why changes of temperature and moisture did not affect all plants in the same manner. Linnaeus, with all his learning and familiarity with plant life, seems not to have penetrated the secret of its existence, nor to have comprehended the invisible unconscious force which dominated its phenomena. Moreover, "the time for sleep and waking is as different for plants as for animals," which would seem effectually to controvert the views of that celebrated naturalist. It is known, also, that plants do not sleep so well in cloudy weather; that

* "Insectivorous Plants," p. 9.

* "Insectivorous Plants," p. 263.
† *Ibid*, p. 33.

their most profound sleep is the night following a day of brilliant sunshine. Nothing could be more natural nor rational, for they need less sleep in cloudy weather, when their psychic activities are less excited, than after a day of sunshine, when all their vital functions have been augmented.

The instinct for the beautiful is as conspicuous in plant life as it is in the animal, perhaps even more conspicuous, for it is quite universal in the vegetable kingdom. Can anything that lives be more delicately beautiful than the lily, more daintily beautiful than the violet or pink, or more gorgeously beautiful than the chrysanthemum, or the Jacque rose? The members of the floral kingdom seem to vie with each other in the production of artistic effects, both of form and color. It has been claimed that Nature or the Unconscious cares only for utility, and that it ceases its activity when that end is secured; and that all these things exist for the edification and pleasure of that greedy savage biped, the forerunner of ideal man. The truth is that the Unconscious produces the beautiful for beauty's sake. Ages before man appeared on this planet, the wild rose and the delicate maiden hair graced the outskirts of the forests, and the beauty of the fruit blossoms lent a charming loveliness to the lonely fields and hill-sides. Everywhere in Nature, I repeat, beauty is an end in itself; attends upon the useful and ever crowns Nature's handiwork. Nothing can exceed the inspiring beauty of the fields in budding and harvest time.

The most commonplace plant in the vegetable kingdom clothes itself with the habiliments of the beautiful. The corn, with its long green leaves and flossy tassels; other cereals, with their bearded heads waving in the sunlight; the modest legumenocæ, with their rose-hued blossoms; and even the potato vine, with its flower-top corona at the instant of fruition, are all instinct with beauty having no necessary connection or relation with the useful, or idea of presenting a picture to please the eye of the plodder who tills the soil and aids in their production. The landscape is most radiant, in the season for radiance, with the beautiful having no connection with the useful. Has any one discovered the uses of the daisy, the buttercup, or the golden-rod? And the gorgeous landscapes, so ravishingly beautiful: has any one unraveled the secret of their existence and reason to be? It seems as if the Unconscious had thrown up the everlasting hills just for the purpose of scenic effects, and clothed them with the primeval forests for the same purpose. And the forests, how majestically beautiful are they! They unite the useful with the beautiful. The reflective observer unconsciously and involuntarily feels like uncovering his head in the presence of the stately oak, or elm, or the dignified and lofty pine. In their forms and fibers lie treasured the unwritten history of centuries, to be revealed only to the sincere interrogator. They and their congeners and collaborators attest the existence and operations of an exhaustless energy, which, without nerves or nervous ganglia, lives in all and through all, and conducts all to a destiny as wise as it is inevitable, but at the same time, wholly unconscious.

INFLAMMATION OF THE MIDDLE EAR WITH INVOLVEMENT OF THE MASTOID. REPORT OF CASES.

BY WM. C. BANE, M. D., DENVER, COLO.

I HAVE no apology for presenting this subject, for, since the valuable work of Macewen on pyogenic diseases of the brain and spinal cord has been given to the profession, our regard for the ear and its relation to the brain has been greatly increased.

For years the danger of neglecting the old standing cases of otorrhœa has been emphasized, but only within the last decade has a radical treatment of such patients been made clear. It remained for Schwartze, Hartmann, Stacke, Gruening, with some others, to give us the technique, and demonstrate the value of a surgical procedure for the cure of this dangerous class of ear cases.

Macewen, in the preface to his work, states that "since the majority of pyogenic affections of the brain arise from neglected otitis media, they ought to be regarded as preventable diseases and their prophylaxis scrupulously attended to."

I shall not consume your time in reviewing the anatomy of the middle ear and mastoid, nor in describing the radical operations, as they are very clearly given in the recent publications on diseases of the ear.* The following selected cases are typical of some of the forms in which the disease is encountered.

CASE I.—CHRONIC OTITIS MEDIA WITH CERVICAL ABSCESS—OPERATION—RECOVERY.

H. F. A., aged fifty-nine years, German, hotel keeper.

History: Family history negative. Has enjoyed fairly good health, but since the late war has suffered with internal hemorrhoids, which at times have bled quite freely. He has been accustomed to drinking liquors.

In November, 1893, he had an attack of inflammation of the right ear. The pain was slight, lasting but a few days, and was followed by a discharge, which continued about two weeks. A few weeks later the ear began to discharge again, and became quite painful, so that his sleep was interfered with. Early in February, 1894, he placed himself under the care of an aurist of this city, who treated him two months. In the latter part of March, 1894, he came to my clinic, and asked me to examine his ear. An examination revealed a small perforation in the upper posterior quadrant of the right tympanic membrane, through which an offensive muco-purulent discharge was coming. There was tenderness and swelling of the tissues covering the mastoid. He complained of pain in the right side of his head, and some dizziness. I advised an operation, but when I learned that he was under the care of an aurist I declined to treat him, and advised him to return to his physician.

During the third week in May, 1894, the patient

* A most excellent treatise on this subject by Dr. E. B. Dench, of New York City, has been issued by D. Appleton & Co.

came to my office and asked me to take charge of him. In the interval he had been under the care of three different physicians. He was in a distressing condition, having a care-worn expression, complexion dull and muddy. Below his right ear was a swelling, the size of half a goose egg. The disease had manifestly advanced in its destructive course. I found a free yellowish-green discharge coming from the canal; tissues covering the mastoid slightly swollen. From the mastoid downward and backward the tissues were swollen and boggy; the posterior auricular glands were indurated and were very much enlarged.

Patient was admitted to St. Luke's Hospital on the morning of the 25th of May, 1894. Pulse 100, temperature 101°; urine free from albumen and sugar.

Operation, 4 P. M. After the usual preparatory steps ether was administered. A large quantity of yellowish-green pus discharged from the external meatus as the dressings were removed, indicating a free communication between the ear and the abscess in the neck. A free incision was made from the apex of the mastoid upwards 4 c.m. The outer surface of the mastoid and its cells were found to be healthy. The incision was extended downwards into the abscess, from which between four and five ounces of pus were evacuated. The disease had extended from the antrum through the under surface of the mastoid into the tissues of the neck. Some of the posterior auricular glands were broken down. The diseased tissues were removed with a curette; then a counter opening was made at the lowest point of the abscess, and all of the parts cleansed with 1-4000 bichloride of mercury. The mastoid wound was packed with iodoform gauze, and a drainage tube passed through the abscess cavity of the neck. The parts were cleansed daily with pyrozone. There was no discharge from the ear after the operation. The temperature fell to normal on the second day and remained so. At the end of the fourth week the wounds were closed.

Patient reported at my office on the 10th of this month; the ear has remained well, the hearing being quite equal to that of the other ear; that is, he hears the watch on contact. Both tympanic membranes are dull and thickened. It is manifest that it was more good luck than good management that the patient did not have an abscess of the brain instead of the neck. However, I shall not censure the physicians, as the fault may have been with the patient in not submitting to their judgment.

CASE II.—OTITIS MEDIA WITH MASTOIDITIS—OPERATION—RECOVERY.

J. M., aged twenty-seven years; American; carpenter.

History: Has always been healthy. On the 6th of November, 1894, he was exposed in a storm while driving from Colorado Springs to Denver. That night a severe pain developed in the right side of his head and ear. He was delirious for about three days, when a discharge began from his right ear. On the 16th of November he came uuder my care at the dispensary of the University of Colorado. He was very much exhausted, being scarcely able to walk.

Hearing: Right, watch, faintly on contact. Left, 50–60.

Right canal filled with muco-purulent discharge. A large perforation in the posterior half of tympanic membrane; swelling in front, back of and below the ear. Cantharidal collodion applied in front and back of pinna; ear cleansed with pyrozone, and patient directed to keep the ear cleansed with warm salt water. For the next three weeks he seemed to improve under local and constitutional treatment.

The perforation being large, the cleansing and antiseptic solutions not only cleansed the middle ear, but passed by the Eustachian tube to the throat.

On December 11th, he complained of dizziness, which impressed me that an operation was indicated. His temperature at that time was 100.2°. I called the attention of my colleague, Dr. John Chase, to the case, who, after an examination, advised waiting for further developments. There was no material change in his condition until December 16th, when he was taken with a severe pain in front of the ear, which lasted about an hour, and was followed by a prominent swelling, extending forward to the outer canthus of the right eye. On the following morning I found the swelling as above, and also considerable swelling and tenderness of the tissues over the mastoid and below the pinna, with induration of the posterior auricular glands. Pulse, 130. Temperature, 101°. He being unable to pay for a bed, I arranged for him to go to the County Hospital to be operated upon. Eight days later I was asked to see the patient at his sister's in North Denver. I found him feeling better, he having spent four days in the hospital. His ear affection, however, was not improved, though there was less tenderness of the parts. Pulse, 110. Temperature, 101°. Optic discs normal.

On December 25th he was admitted to St. Luke's Hospital. Operation, December 27th. I did what has been termed the *classical mastoid*, or Gruening's operation, removing the entire cortex, which was filled with pus, granular tissue and carious bone. The wound was cleansed with 1-4000 bichloride solution, packed with iodoform gauze, and covered by the usual dressing.

No pus was discharged from the wound or ear after the operation. At the end of two weeks the mastoid wound was closed. Patient's temterature was normal from the day after the operation. I inquired of him on the 14th of this month, and learned that his hearing was good, and that his ear had not given him any trouble since he was operated upon.

CASE III.—SUBACUTE OTITIS MEDIA. TENDERNESS AND SWELLING OVER MASTOID. OPERATION—RECOVERY.

Mrs. J. J. M., aged twenty-three; American.

History: General health not good. Hearing has been defective for ten years. About the first week in January, 1895, acute inflammation of the right

ear developed. The ear pained her for eighteen hours, when it began to discharge; aching and discharge have been continuous.

Patient came under my care on February 29, 1895. Hearing, right ear, 1-60; left, 18-60. Right canal filled with discharge; tympanic membrane inflamed, and a small perforation exists in Shrapnell's membrane. Perforation enlarged, and ear cleansed with pyrozone. Ear was cleansed with hot salt water several times daily. The discharge and pain diminished until March 8th, when the pain became very severe in, and back of, the ear, with some swelling of tissues over the mastoid, the discharge having stopped on the previous day. On the morning of the 9th there was a return of the discharge; the pain had diminished somewhat, but the tenderness in the ear and mastoid remained about the same. Pulse, 100; temperature, 99 5-10°.

During the afternoon of March 9th, patient was admitted to St. Luke's Hospital, and prepared for an operation.

Operation, March 10th, at noon. Ether was administered. Mastoid found to be engorged, but did not contain any pus. The posterior bony wall, down to the antrum, was removed and the parts thoroughly cleansed with 1-4000 bichloride solution; wound was packed with iodoform gauze, and then covered with the regular sterilized dressing. The next day the temperature was normal. There was no discharge from the ear or wound after the operation. In two weeks the mastoid wound had healed. A linear keloid developed in the upper end of the wound.

Patient was in my office on the 25th of May. Her ear has not given her any trouble, and she states that the hearing is as good as it was previous to the inflammation.

CASE IV.—ACUTE OTITIS MEDIA, INVOLVING MASTOID.

H. A., aged thirteen years; American.

History: Came under my care September 21, 1894.

General health is good. Left ear was affected when he was six months old with inflammation and discharge. During the past two years he has had some pain in, and at times, discharge from the left ear. Ten days ago the left ear became very painful, and a discharge soon appeared. Hearing, watch, right, 8-60; left, on contact. Right canal free, tympanic membrane dry, dull and thickened. Left canal is moist with a muco-purulent discharge. There is a perforation between three and four millimeters in diameter, in the lower posterior quadrant of the tympanic membrane. Tenderness in mastoid upon pressure. Patient has had pain back of the ear for three days, and chilly sensations for past two days. Pulse, 90; temperature, 99.8° at 11 A.M.

Treatment: Ear cleansed with pyrozone; canthardial collodion applied over mastoid. Calomel internally. Ear to be cleansed with hot salt water.

September 22nd, 11 A. M., temperature, 99.8°; some chilliness.

September 24th, 11 A.M., temperature, 99 3-10°, discharge free.

September 25th, 11 A. M., temperature normal.

October 8, 1895. Patient has been treated daily by cleansing. Discharge has ceased, and tenderness disappeared. Hearing, watch, right, 15-60; left, 18-60.

Patient remained under my care for two months after his ear was well, while I treated him for trachoma.

CASE V.—ACUTE OTITIS MEDIA, WITH MASTOIDITIS—OPERATION—RECOVERY.

T. E. W., aged forty-one. American; attorney. Was referred to me by Dr. T. J. Eskridge, on May 24, 1895, as the telephone message to him indicated that the case was one of ear disease.

At 11 A. M. I found the patient tossing about his bed in agonizing pain, located in his right ear, mastoid and side of his head. He had been suffering for thirty-six hours. Hearing, watch, right, 2-60; left, 50-60. Moderate tenderness to pressure on the tragus; marked tenderness to pressure on the mastoid. Inner half of canal swollen, most marked in the supero-posterior wall, near the tympanic ring. The drum membrane congested. Pulse, 84; temperature, 101°. Bowels constipated. Hypodermic of 1-4 of a grain of morphine, with 1-120 of atrophine, administered. Upper inner wall of canal incised. Leeches in front and back of ear. Ice poultice to the mastoid; hot water to the canal. Calomel by mouth every two hours.

The pain was controlled by an anodyne at intervals for two days. The ice poultice failing to abort the mastoid inflammation, canthardial collodion was applied. Dr. Eskridge and Dr. T. E. Taylor, the family physician, saw the case with me on the second day, and confirmed the diagnosis. The pulse ranged from 84 to 96, and the temperature from 100 to 102½°, for five days, when there was a free discharge from the ear. However, the tenderness in and back of the mastoid did not subside. As the greater inflammation was in the mastoid, rather than in the middle ear, I was unwilling to assume the responsibility of not opening the mastoid and relieving the engorgement, as I felt convinced that it would soon break down. The patient, knowing his condition, readily consented to have an operation performed. The left optic disc was hyperæmic.

Patient was admitted to St. Luke's Hospital on the morning of May 30th, and prepared for operation. Operation, 4:30 P. M. The tissues over the mastoid were considerably swollen. The mastoid was found to be very much engorged, and some of the tissues appeared microscopically to be broken down. The wound was packed with iodoform gauze, and covered with sterilized dressings. Some of the scrapings from the mastoid were placed in sterilized gauze, and later examined microscopically by Dr. Crouch, the bacteriologist, who found them to contain pus cells and streptococci.

On the second day after the operation patient's pulse and temperature were normal, and he had a good appetite. Previous to the operation he had

not cared for food. On the third day the temperature and pulse went up, temperature ranging from 99 to 101° for the next five days. He developed rheumatic pains in the right arm and leg, for which he was given salicylate of sodium, which gave him relief, and brought his temperature down to normal in forty-eight hours. On the second day after the operation there was some discharge from the mastoid wound, which has been continuous. Wound was cleansed with 1–4000 of bichloride of mercury for about a week, when formalin solution, 1–1000, was substituted, which caused a marked diminution in the amount of discharge. Nineteen days have elapsed since the operation; wound is almost closed. Hearing, watch, is 5-60.

Remarks: Further comment on the first case is scarcely necessary. The indications for operation were so plain that any one should have recognized them.

The second case illustrates one of the most acute types of the affection. The constitutional involvement was very marked at the beginning, and the local disease was certainly sufficiently active to call for an operation much earlier than it was performed. Had the circumstances been different I would have insisted on an operation earlier than I did. The amount of destruction that had taken place in the mastoid clearly proved that delay beyond the first ten days or two weeks was unwise. It is in just such cases that Nature may, in her efforts to get rid of the disease by absorption, convey the pyogenic material to a more vital portion of the system, and disastrous results follow, as thrombosis of the lateral sinus, or abscess of the brain.

The third case was operated upon at a time when the mastoid was threatened, and clearly demonstrated the wisdom of operating early, as it not only saved the mastoid, but at once cured the middle-ear disease.

Fourth case was treated according to the indications, and yielded to cleansing and counter-irritation. While he was cured, the time may come when he will have a relapse.

With a thorough knowledge of the anatomy of the mastoid and adjacent parts, the operation can be done *antiseptically*, without fear of bad results. Macewen has performed the operation thirty-eight times, with as many recoveries.

In fifth case there was unmistakable evidence that the mastoid was involved in the inflammation, and this was proven by the streptococci and pus cells contained in the scrapings. Had I postponed the operation, caries of the bone would have occurred, and at the same time the system would have been burdened by absorption of the pyogenic product.

Patients with chronic otorrhœa, or those who have relapses, are in danger of pyogenic infection. In the light of the present day, we are seldom justified in permitting such patients to pass from under our care, without, at least, urging that they undergo the radical operation.

Carbolic acid, in doses of one-half centigram, repeated n one or two hours, it is said by Bacelli, will cure tetanus.

OXYGENATED CHLOROFORM.*

By J. Hubley Schall, M. D., Brooklyn, N. Y

TO Dr. H. L. Northrop, Professor of Anatomy in Hahnemann Medical College, Philadelphia, is due the credit of first using and demonstrating the practical utility of oxygenated chloroform when it is used as an anæsthetic.

Oxygenated chloroform is a mechanical mixture of pure oxygen with the vapor of chloroform. The apparatus which I have employed for its administration is simple, and differs somewhat from that devised and suggested by Dr. Northrop. It is composed of a cylinder for pure oxygen, from which, through a rubber tube, the gas is passed into a graduated bottle containing a given amount of chloroform, and from this, by another tube, oxygenated chloroform vapor is carried into an inhaler. This inhaler consists of a nickel plated mask with a rubber face, which covers the nose and mouth; on the upper surface is a button valve for expired air. It fits closely to the face, is light and not clumsy to handle. After each administration it can be readily cleansed.

Should the oxygen gas become exhausted in the midst of an operation, I have a bulb which can be easily attached to the tube through which the oxygen has passed, and condensed atmospheric air can be used instead.

One great advantage of the anæsthetic is that there is a proper admixture of oxygen, so that the patient does not experience that smothered feeling which arises from the administration of either chloroform, ether or bromide of ethyl by the ordinary method; consequently the anæsthetic gives rise to little or no struggling. Another advantage is that it enables us, after the anæsthesia has been completed, to give a few inhalations of pure oxygen, thus washing out of the lungs the chloroform vapor.

The stage of resistance is short, or entirely absent.

Complete narcosis is produced in less time than can be done either by ether, chloroform or bromide of ethyl. The shortest time required to bring about complete narcosis was one-half minute. Instead of the ghastly countenance attending the anæsthesia of chloroform, the patients, under the oxygenated chloroform, presented a ruddy color of the lips and cheeks. Blood flowing from a wound was bright red.

The anæsthetic sometimes slows the pulse, but it is full and strong. The respirations are little, if at all, affected.

Vomiting is not the rule; if it does occur it is brief and consists mainly of mucus, and can be controlled by giving more concentrated vapor.

Recovery takes place quickly. With inhalations of pure oxygen or vaporized aromatic spirits of ammonia consciousness is regained, in many cases, in from one to five minutes; without the inhalations, from five to twenty minutes. In no case was great prostration experienced, nor have

* Read before the Kings County Medical Society, February, 1896.

I ever noticed any delirium after the patient had been placed in bed.

The amount of chloroform used, even where time and great care was taken in those cases with cardiac and nephritic lesions, was comparatively small.

I could not ascertain the quantity of oxygen used in each case, as the cylinder contained 40 gallons, and would last from four to six hours of anæsthetizing.

Of a considerable number of cases where the anæsthetic was used the following are probably the most interesting:

Male, aged sixty-eight. Atheromatous arteries, urine albuminous. Operation, amputation of the thigh.

There was no radial pulse before operation. During operation it could at times be felt.

Time to anæsthetize required about five minutes. Pulse after operation was fuller in volume than before operation.

Male; urine albuminous. Operation, external perineal urethrotomy.

Pulse before operation sub-normal; during operation was full in volume and seventy-two.

Time for complete anæsthesia four minutes and a fraction. Quantity of chloroform used was about six drachms. There was no vomiting.

Male, seventy-seven years. Mitral murmur. Albuminous urine. Vesical operation. Before and during operation the pulse was the same. Time required for complete anæsthesia was three minutes and a fraction. About one drachm of chloroform was used. There was no vomiting.

In regard to vomiting, the anæsthetic was put to a good test in the following case:

Male, twenty-two years. Healthy and strong. Crush of arm, necessitating amputation. At the time I was about to administer the oxygenerated chloroform he informed me that he had just partaken of a hearty dinner. However, the anæsthetic was given, which rapidly produced complete narcosis, with no excitability. During the operation, which required fifty minutes, his pulse was strong and regular. At no time during the operation did he vomit, and his general condition was better during than before operation.

The advantages worthy of consideration in connection with the use of oxygenated chloroform are as follows:

I. Complete anæsthesia is produced in a shorter time than can be done by either ether, chloroform or bromide of ethyl.

II. The insignificant amount of chloroform used.

III. The pleasing aspect of the patient's countenance, instead of the death-like pallor attending the use of chloroform alone.

IV. Absence of nausea and cyanosis.

V. Tendency to quickly regain consciousness and freedom from cerebral excitement afterwards.

VI. Little shock.

VII. Its comparative safety where other anæsthetics seem contra-indicated.

In animals, a poisonous dose of oxygenated chloroform caused the following condition:

The respiration became feeble and intermittent, and finally ceased altogether. The arterial pulsations became excessively weak, but persisted longer than the respirations. The left side of the heart was the last to die, death being produced by paralysis of the respiratory centers in the medulla oblongata.

The heart of the animals experimented upon was found to be in motion long after the thorax was opened, while the respiratory movements had ceased about four minutes before.

A number of the animals, which were apparently lifeless, were quickly resuscitated by the administration of pure oxygen gas, combined with artificial respiration. Thus, in case of collapse under oxygenated chloroform, the free administration of pure oxygen gas, in combination with artificial respiration and manipulation of the area over the præcordium, would doubtless prove an efficient method of resuscitation in human beings.

STRIDULATION.

BY F. R. FISHER, PH. D.

I DESIGN here to note certain passages from Mr. Darwin's "Descent of Man," also certain conclusions which they suggest, as a possible explanation of the origin of the power of some insects to stridulate, and of the organs involved in stridulation.

On page 273, of the above book, Mr. Darwin says: "Westring has made the interesting discovery that the males of several species of Theridion have the power of making a stridulating sound, whilst the females are mute."

"The apparatus consists of a serrated ridge at the base of the abdomen, against which the hard hinder part of the thorax is rubbed; and of this structure not a trace can be detected in the females. It deserves notice that several writers, including the well-known arachnologist, W lckenaer, have declared that spiders are attracted by music. From the analogy of the Orthoptera and Homoptera, to be described in the next chapter, we may feel almost sure that the stridulation serves, as Westring also believes, to call or to excite the female, and this is the first case known to me in the ascending scale of the animal kingdom of sounds emitted for this purpose."

Again, on page 280, we have the following: "The males of other Diptera apparently try to win the females by their music: H. Muller watched for some time two males of an Eristalis courting a female; they hovered above her, and flew from side to side, making a high humming noise at the same time. Gnats and mosquitoes (Culicidæ) also seem to attract each other by humming; and Prof. Mayer has recently ascertained that the hairs on the antennæ of the male vibrate in unison with the notes of a tuning fork, within the range of the sounds emitted by the female. The longer hairs vibrate sympathetically with the graver notes, and the shorter hairs with the higher ones. Landois also asserts that he has repeatedly drawn down a whole swarm of gnats

by uttering a particular note. It may be added that the mental faculties of the Diptera are probably higher than in most other insects, in accordance with their highly developed nervous system."

On page 283, Chapter X, relating to the Orthroptera in general, and the European field cricket (one of the Achetidæ) in particular, "we find Dr. Scudder was able to excite one of these insects to answer him, by rubbing on a file with a quill. In both sexes a remarkable auditory apparatus has been discovered by Von Siebold, situated in the front legs."

Mr. Darwin brings these facts to our notice, and deals largely in them in discoursing of the relations between insects of opposite sex; but while he also clearly describes and figures many stridulating organs, he does not, so far as I am aware, speculate upon the cause or causes that might give rise to the variation of structure, which, being advantageous, becomes persistent. Assuming a deviation which gave an advantage to some individual, he argues its subsequent preservation and development to greater perfection, on the basis of sexual selection. This is clearly indicated in his chapter on Orthoptera, page 286, where having described the fiddle device of the Locustidæ, he continues; "By what steps the more simple apparatus in Archetidæ originated, we do not know, but it is probable that the real basal portions of the wing covers originally overlapped each other, as they do at present; and that the friction of the nervures produced a grating sound, as is now the case with the wing covers of the females. A grating sound thus occasionally and accidently made by the males, if it served them ever so little as a love-call to the females, might readily have been intensified through sexual selection, by variations in the roughness of the nervures having been continually preserved." Thus it appears that he is content with having found the probable fundamental variation. Looking back, now, over the above citations, we note the declaration of Walckenaer, that spiders are attracted by music; also the assertion of Landois, that he has drawn down a swarm of gnats by a particular note, and, further, we have the remarkable discovery of Mayer concerning the sympathetic vibration of hairs on the antennæ of certain of Culicidæ "in unison with the notes of a tuning fork, within the range of the sounds emitted by the female."

It is clearly inferable, on the evidence educed by Mr. Darwin, that the function of stridulating is highly pleasurable to insects which are endowed with it; and, as the sounds come within the definition of a musical sound, it is not surprising to find that the structure of certain stridulating insects should respond pleasurably to harmony otherwise produced. In the case of Diptera, we have attraction by the simple repetition of a single note, while in Arachindæ, there is evident enjoyment of musical composition.

Now, it appears to me, as the assertion that insects are sensitive to musical sounds implies the necessary physiological capability of transmitting such pleasurable impulses to the nerve centers, that sensations arising within the nerve centers, from functional causes alone, will likewise be transmitted along the nervous system with equally pleasurable momentum, in a reverse direction, and ultimately become visibly manifest in muscular motion. How else may we account for the visible expression of the emotions in any organisms? To particularize more minutely, let us examine some of the evidence deducible from our own bodies, briefly. He who beholds a dreadful sight, instantly feels a shock of horror which penetrates the remotest parts of his structure; he feels a thrill, transmitted with lightning-like rapidity throughout his entire nervous system. Conversely, one may dream a fearful vision, and suddenly awakening finds himself bathed in perspiration, weak and tremulous. In the one case the cause is external, and its potent effect traverses the neural channels to their centers, whence a reflex action gives origin to certain characteristic manifestations; in the other, the cause lies entirely within the centers themselves, but is conveyed, no less powerfully in a reverse direction, over the same channels, and becomes manifest in external appearances. We may instance in evidence a like analogy between the sensations induced and educed by sights and sounds, pleasurable to the eye and ear, and by those mental pictures and whispers which entrance the imagination.

We know, further, that certain emotions give rise to particular sensations, which are so characteristic as to originate stereotyped expressions, intended to convey some adequate idea of the depth of the emotion: as, one may say his "flesh crept" as an indication of his horror, and yet again, from one who has heard thrilling music, we hear "cold chills ran over me." We are further conscious, at the same time that these are the same sensations experienced when the cause originates in the nerve centers. There are persons who delight to be tickled, and to many others a moderate degree of titillation, as by a straw or feather drawn lightly over the flesh, is pleasurable. With most persons this titillation produces a sensation commonly called "goose-flesh," which, if carefully examined, will be found to be caused by a contraction of the cuticle around the roots of the superficial hairs on the body. Not only does this occur at the irritated point, but over a considerable area, and perhaps over the entire body; and we therefore see in this phenomenon the direct action of an impulse on local nerve centers; its diffused transmission to other ganglia, and the reflex action from them to the surface.

It seems to me then, that, physiologically, any sensation to which a ganglion may be susceptible may be conversely produced by the ganglion itself, and I desire now to show how this function of a neural center may become a source of modification of external structure sufficient to give rise to a distinct variation, which, if useful, beneficial or advantageous in any way, will be "preserved and intensified."

Periodically the nervous system of any creature develops a condition that gives rise to an appetence which is the initial motive of the pro-

creative act, destined to reproduce the individual. As the sexual desire augments, so does the restless perturbation of the creature, and he or she is compelled to seek relief by intercourse with a mate. To particularize, let us consider a member of the family Acridudæ, or grasshoppers, as being familiar insects, easily observed, and assume in the male the functional agitation in question. These insects stridulate industriously to excite or attract their mates, and the rather pleasant sound they emit originates from an apparatus well defined by Mr. Darwin, who says: "The inner surface of the femur (Fig. 14) is furnished with a longitudinal row of minute, elegant, lancet-shaped, elastic teeth, from eighty-five to ninety-three in number, and these are scraped across the sharp, projecting nervures on the wing covers, which are thus made to vibrate and resound." Harris says that when one of the males begins to play he first bends the shank of the hind leg beneath the thigh, where it is lodged in a furrow designed to receive it, and then draws the leg briskly up and down."

I conjecture that starting from the nerve centers, the impulses which constitute sexual desire are propagated along the system and manifest themselves in agitations of the limbs, which may be apparent as tremblings and contractions of the members resulting from muscular tension. We note these manifestions in many animals without further developments, but in the case before us we may readily perceive the possibility of a secondary result. For instance, the femur of the grasshopper has a hard integument, which probably was never quite smooth, and if under the extreme agitation of the leg the hard covering came in contact with the nervures of the wing there might be a sound produced; indeed this is highly probable. Now the periods of the vibrations, which constitute the tremblings of the leg, must, I should think, correspond to the periods of the pleasurable nerve impulses (else how could we account for them) and, therefore, the periods of the stridulated sounds should be in unison. And as the vibrations of the sounds conform to the vibrations of the body emitting them, the probability is that the pleasurable sensations are further titillated and stimulated throughout the whole physical structure by the advantitious contact of the leg with the nervure of the wing cover. If this be so it at once becomes clear that any insect which is subject to such an interference of the members more than another—either owing to the greater functional vigor it possesses, or closer juxtaposition of the members—will be subjected to greater stimulation of the sexual desire, and seek with more eagerness and perhaps oftener for a mate.

It follows then, that the peculiarity being advantageous to a more vigorous and better endowed individual, the resulting progeny will be more numerous, and, by the law of heredity, the stock will be improved in this respect. We may feel sure, too, that the resulting sensations from the above cause, being the augmentation of a pleasurable nervous condition, the procedure will soon be accentuated and made permanent by habit. In time, doubtless, the points of attrition will become differentiated from their surroundings, if only as calosities, and these again will become modified into the delicate symmetrical structure which we find so beautifully developed; the modifying and intensifying agent being the coercive force exerted by sexual selection. Nor will intensification of the aberrant forms alone be due to the above cause, for returning to our citations again, we are impressed with the averred sympathy of certain parts of the anatomy of insects with musical vibrations.

Individuals of the same specific variety doubtless have similar nervous systems, and what is true regarding the propagation of impulses in an individual male, will be more or less true of the female; or, to state the case more definitely: as we found, in all probability, that the vibrations of the stridulations were in unison with the neural impulses, so soon as the resonant apparatus became sufficiently modified to emit sounds of considerable intensity, the aerial undulations would impart their periods to such portions of the structure of a remote female as were best suited to be impressed thereby, and her nervous system would be agitated in sympathy. Thus the better endowed male would have an additional advantage, for he would be able to attract the female from a distance, and her excitation would no longer depend solely upon her own functional condition.

SOME EARLY EXPERIMENTS IN SERO-THERAPY.

BY JAMES ROBIE WOOD, M.D., NEW YORK.

(*Continued.*)

IN our day "*men who mistake a new phrase for a new thought*" crowd every medical threshold. Such men are prone to treat with disdain those who doubt the originality of modern reconstructions of ancient ideas.

After groping for more than twenty years along certain lines of thought I feel somewhat sure of the ground over which my feet have gone, and hope that I have accomplished sufficient experience to warn others not to waste precious energies in trying to cultivate sterile fields. Although my experiments began in 1875, which was many years before any of those in the same line of research, whose names are now deservedly honored all over the world, yet no one can charge me with taking undue credit to myself, having constantly declared that my attempts were simply repetitions of what had already been done in Germany long before I was born; the only difference being that I carried the contagious material through the living lower animals before applying it to man, while the older isopaths attenuated morbid matter by passing it through fluids and solids.

The time may soon come when we shall learn to do the same again, but in more perfect menstrua, and with greater precision of manipulation. Some methods of dealing with morbid products, which have suggested themselves to my mind, will be touched upon in the course of this paper; others

are to be reserved for the article on "What will be the therapeutics of the future?"

The fad for applying serum from immune animals, which has not yet departed from many medical minds, is an insult to common sense and surely to reason. Who would for an instant tolerate the idea that serum from an animal immune to variola would be of the slightest value as a preventive or curative of that disease? Of what possible use as an antitoxin to smallpox is the serum of a man one year after he has recovered from variola, or that from a child a year after vaccination? Yet it is safe to say that their immunity from that disease is comparatively complete. But had serum been obtained from the same individuals a few days or weeks after recovery there would have been a possibility, nay a probability, of its acting as a useful antitoxin.

It is not immunity that yields a curative principle; but rather there remains, in a highly attenuated form, an infinitesmal amount of the morbid fluid, whatever it may be, microbe or some subtler agent of which chemistry or the microscope hath yet no ken. Future generations may or may not discover its face or form.

So long as the morbid matter is present, in dilution, attenuation, potence or whatever else pride and prejudice permit us to call it, *and no longer*, will such serum remain beneficial as an antitoxin, I care not whether it be a millionth or a billionth of a grain of the original material. It is simply a matter of dilution carried beyond the danger line. Many who but yesterday, in the narrowness of their medical intellects, ridiculed the therapeutic value of the millionth of a grain, are to-day on their knees in humble adoration before antitoxin's decillionth. It matters little if the original substance is churned and changed through the circulation of a horse, shaken in bottles of milk or water, or triturated with sugar of milk.

At some later date I hope to speak more at length on the mechanical and chemical potentiation of morbid matter, as well as of drugs.

My former paper contained an account of experiments in isopathic sero-therapy, instituted under my direction during the winter of 1875. The material for injection and superficial application was prepared from the tissues of rabbits, previously inoculated with tubercle. Notwithstanding that those patients only who were in an apparently hopeless condition were subjected to the treatment, one was much benefited, but as the improvement might have been due to other causes, the case was not recorded as surely a result of the serum injection.

My crude and incomplete experiments were the first in a long series of attempts to advance along the lines laid out early in this nineteenth century by the isopaths, whose once despised or unheeded lessons now enter thousands of attentive ears under the name of antitoxins.

Throughout the past ages occasional records of cure by identity have been found, but generally so entangled in a mesh of ignorant and superstitious practices as to forbid intelligent attention The isopaths bravely, but vainly endeavored to rescue it from the suffocation of universal contempt, and to place it among the statutes as a medical law.

Jenner's keen observation had already found and applied immunity from smallpox; but it never occurred to him to go further and formulate a general law based upon his own magnificent discovery. This honor belongs to the forgotten isopaths alone. Jenner and vaccination have suffered from ever recurring tornadoes of abuse; but the isopaths endured the more humiliating martyrdom of sneers, ridicule, and, in the end, worse than all else, they beheld their sincere efforts utterly ignored, and their offering upon the altar of humanity spurned and spat upon.

Within another decade isopathic antitoxins may reach their highest possible perfection, and we shall then acquire more definite ideas of their use, and the character of the diseases in which they may be successfully employed. Meanwhile, let us not forget or despise those humble men who announced the law to a perverse and narrow medical world. Remember it was not their fault that they were unable to bring within the reach of human vision the myriads of microbes which, all unknown, from time immemorial have been such powerful friends as well as fierce enemies of animal life.

While considering what was next to be done I sought and obtained, through Mr. Frederick Law Olmsted, permission to make autopsies upon the wild animals of Central Park. But birds, beasts and reptiles, evidently unwilling to sacrifice themselves in the cause of science remained obstinately healthy. My calls at their cages were fruitless, until one day the head keeper handed me an unconscious monkey, which was supposed to be dying of consumption. After piercing the simian's medulla, with the assistance of Dr. Chas. L. Nichols, I opened its chest and examined the lungs, hoping to find tubercular deposits with which to inoculate a fresh installment of rabbits, preparatory to another series of experiments. A careful scrutiny of the pulmonary tissue revealed no trace of tubercular lesion. We then examined other parts of the body. Upon opening the small intestines unmistakable evidences of typhoid fever were detected.

Another general survey was made, then the body was wrapped up and Dr. Nichols started with it, intending to take it to Ward's Island and there make a minute examination of its tissues. While on the way, fearing the possibility of conveying the infection to patients at the hospital, the doctor threw the treasured remains in the East River. This was to be regretted, as it was good material for inoculating other animals from which to prepare a typhoid serum. This I considered in later years, but having meanwhile found the efficacy of phenol, which I have used for nearly fifteen years with the happiest results, I did not care replacing this almost certain remedy by a doubtful and untried agent. A number of fruitless experiments, continued in the manner already described, convinced me that

my crude preparation of serum was too uncertain and dangerous for presuming to use in favorable cases. It was hardly just to any course of treatment to select, as I had done, only those with advanced disease, having large cavities and being too feeble, in nearly all cases, to leave their beds.

With such an unsatisfactory record I began to consider the feasibility of treating morbid tissues so as to avoid the probable dangers of my first preparation. I sought for means to eliminate certain unsafe elements, so that I need not hesitate to use the serum in far more favorable cases. Many expedients from time to time suggested themselves, a few of which I shall enumerate, hoping thereby to furnish a few possible clues, so that some diligent traveler along the same road may be warned of its pitfalls, and guided to some safer and better path than I have been able to find.

Still, hoping to develop an idea of value to mankind, I never ceased considering other possible means to reach the desired end. Among these thoughts came the query: May we not find other mediums for modifying or changing the character of serum from diseased tissue which will be even better than carrying the material through living animals?

My intention was to conclude in this issue the account of my various trials of isopathic serotherapy in tubercular and cancerous diseases; but as the paper is already too much extended, the conclusion will be left for next month.

THE HOSPITAL ORIGIN OF PHTHISIS.

BY J. A. CARMICHAEL, M. D., NEW YORK.

ON February 4, 1896, there occurred at the Academy of Medicine, in Paris, a most important and valuable discussion of the above subject, the force and earnestness of which, and its applicability to all institutions wherein are gathered the unfortunate subjects of one of the most, if not the most, fatal and destructive of diseases, tuberculosis, make it a matter full of the highest possible importance to all sorts and conditions of men, so we are induced to translate in full the observations and experiences of physicians prominent in the history of professional and scientific life in Paris, with the hope that the suggestions made may be accepted, and lead to the adoption of still more active and energetic measures for hospital and other sanitation and protection than at present obtain. We give a full and free translation:

The session of the 4th of February will be reckoned among the grandest and most vitally important in the history of the Academy. MM. Terrier and Debove presented the question of the contagion of tuberculosis in hospitals. The first, with his fearless and accustomed energy, the latter with cold and calm deliberation, but both with equal authority. The vital question of hospital hygiene was clearly set forth. The hospitals of Paris, in their actual condition, are the factories of tuberculosis. Will this truth, now admitted by all in theory, end in becoming a fact capable of practicable demonstration? Let us hopefully wish that it may be so. The eloquent discourse of M. Terrier was an earnest protest against hospital organization as at present conducted. It seemed to him extraordinary that the hospital contagion of tuberculosis should be discussed at all, so self-evident was it, and as easily effected as that of diphtheria. It is less pronounced and manifested because patients do not become phthisical for a time, more or less prolonged, after their exit from the hospital. But among those who are exposed to the contagion, and whose cases can be kept in view, the tuberculous mortality is formidable. M. Terrier's experience in this respect at the "Hopital Bichat" was absolute and unmistakable, so much so, indeed, as to cause him to defy the "Director of Public Assistance," and dare him to produce the figures. Students also became similarly affected, and other facts of daily observation, which the Administration of Assistance could easily learn by giving the subject a little consideration. Physicians demand that we should make war against dust. At the "Bichat," and under the windows of the hospital, wool is constantly being manipulated for mattresses, and to those who complain the answer is given that the wool is sterilized and the dust harmless. This sterilization—so called—is so perfect that there are often found in the wool numbers of insects, lice and fleas. The present model of the spittoons, too, is detestable. The wards of the Bichat Hospital have not been disinfected since 1883; they literally sweat tuberculosis! The rooms of the employes, dead of phthisis, are not disinfected, and the overcrowding of the wards is such that a surgical ward designed to accomodate thirty beds, now contains seventy patients. Continual intercourse between the surgical and medical departments is another source of tubercular contamination. The circumscribed regimen, which M. Terrier is pleased to denominate electoral, has increased the overcrowding, and it is now necessary to proclaim loudly the danger of the hospital as a source of tuberculous contagion.

The humble, and those of low degree, the sick and infirm, of whom so much is said, and for whom so little in reality is done, are the victims. M. Frank insisted upon the danger of tuberculous contagion, and was so impressed with it that he has felt it to be necessary to exclude specimens of dried tuberculosis from his laboratory. M. Debove urged that the danger of hospital contagion of tuberculosis came, not from dust itself, but from the presence in it of Koch's bacillus. He saw no occasion to request the administration not to sweep the wards, for the operation of sweeping was even now exceptional only, and but rarely indulged in. The practical demonstration of the tubercular contagion of the hospital is made for all, but the scientific demonstration could certainly be made by inoculating with tuberculine a few patients on entering, and again after remaining a certain number of days. But this practice would be dangerous, and would the experiment be sufficient?

Moreover, what more marked contrast could there be than the experiences of physicians in

their practice in the city and those obtained in the hospital. Should we permit one of our patients to remain in a locality infected by a tuberculous subject before the most rigorous disinfection, or even after disinfection. Should we allow a parent of a consumptive to sleep in the same chamber, even if the patient shall have used the most antiseptic spittoon. In the army the danger of a tuberculous subject to those around him is regarded as so great that a change is made upon the first suspicion, unless opposed for political reasons. There is only one remedy for hospital tuberculosis contagion, and that is isolation.

The true value of the above discussion consists of the attestation given by scientific observers and witnesses of the communicability of the morbific principles of phthisis by contagion or by exposure to the morbid exhalations proceeding from the organs, principally the lungs, of subjects affected with the disease. Since the general acceptance by the profession of the germ theory, and the part played by the infinitesimalities of microbic life as pathogenous sources and disseminators of such toxic elements as constitute the disease known as phthisis, the bacillus of Koch has come to be recognized as its specific factor, and the phthisic—from the Greek verb $\varphi\theta\iota\omega$, to destroy—or destructive processes are the result of the operations of myriad infinitesimal life that finds introition into the body, how, we know not, but can only conjecture as to its atmospheric association, and literally devours and consumes it. Every human effort possible is being made by the most laborious energy of the profession to stay the ravages of this ruthless enemy of man, but thus far without avail, and impotency is the outcome. True, that here and there the vis medicatrix of vigorous life, aided by judicious medication, may throw off the "perilous stuff," but unhappily, these are few and far between, and cheat death but for a little while. On giving to the scientific opinions of the distinguished representatives of the profession, as embodied in our translation, the critical consideration, which they so eminently deserve, one fact presents itself at once, and most prominently, not so much that the investigation of MM. Terrier, Debove and others, tends to the establishment of the truth of the contagious character of phthisis, as presented to their observation, but the account given of the general condition of the hospital wherein their investigations were made excites in us amazement that life could live in it an hour, a reeking hotbed of nastiness and all uncleanness. Our hyperæsthetic reader will pardon the use of the term, but it's "English, you know," and therefore the "chic" in New York creamdom to-day! If the reader will refer to M. Terrier's report of the filthy condition of the Bichat Hospital, wherein he says that the hospital had not been disinfected since 1883, he will accept our representation of it. Just think of it, for thirteen years the poisonous exhalations from hundreds, perhaps thousands of human bodies, many of them slowly rotting in premature preparation for the grave, and every inch of every absorbing surface in the wards where they lay, like "bloody Tybalt festering in his shroud," taking in the foul emanations, only to give them back again, and thus repeat the poisonous work. We don't wonder that M. Terrier said of the wards that they "*suent la tuberculose*," literally sweated tuberculosis. When we think of the inconceivable immensity of the procreative pullulation of microbic life, and that from a microscopic entity of it it germinates and swarms until the air pulsates with its restless vigor, it will not be difficult to believe that the Bichat Hospital, located in almost the very center of Paris, could furnish microbic toxine enough to poison and decimate a nation. But, thanks to progressive and beneficent science, that always has, and always will, reward the diligent and thoughtful student by the munificent bounty that awaits the solution of its hidden mysteries, and if we may not rescue the victim when once in the grip of the destroyer, we can surely stay its further immolation by the protecting purity of antisepsis. And here we would ask, on the threshold of another century, and with all the agencies, prophylactic and immediate, and so constantly increasing in number and perfection, and so generously bestowed upon the profession, if it can be possible that such an institution as the Bichat Hospital can be allowed to exist, and that too in the very center of civilization, and at the very fountain source of scientific inspiration and professional enlightenment. In his pride of patriotism and citizenship, the Neapolitan was wont to say "Veduti Napoli é poi morir"—see Naples, then die—and so the ancient Roman hugged himself in his "toga virilis," and proclaimed "civis Romanus sum"—I am a Roman citizen. We should think that Gallic pride would lower its crest, and "pipé small" at the thought that such a pestilent "foyer" was in its midst. There is a possible solution if our readers will recall the words of M. Terrier, by which he denominates as *electoral* the circumscribed regimen that increased the overcrowding. We take it that this word electoral is of political significance, and as we have shown in our recent estimate of New York's coroner and his methods, we suppose M. Terrier ran against a "pull," too, and so there's a French pull also on his side the water; heaven help him if it be so. But we may be thankful that the law of compensation is good to us here, even if we do have to sweat under the combined infliction of Dogberry coroners and courts of justice gone awry. We've no Bichat Hospitals here. True, that now and then, we may roll under our tongue the delicious morsel of a "petite esclandre" of philandering doctors and fair nurses walking hospital wards in sweet comity, but it's only for a day or so, especially if the powers that be are of "the female persuasion," and those dragons of virtue yclept Board of Trustees. The love of women for each other under such circumstances is proverbial, and will soon nip all such tender dalliance and surcharge the hospital atmosphere with lingual dynamite more lurid and deadly than the toxine of phthisical or any other microbe. Moreover, newspaper reporters are too Argus-eyed to make the pursuit of such gallantries

either wholesome or of any protracted duration. Only a short time ago these vigilant reporters, whose incisive penetration into inside history, public and private, stops at nothing, gave to the press the inner life of a prominent hospital of this city, a most excellent and praiseworthy institution, and which was supposed to be in a most harmonious and flourishing condition. As the story ran, a gentleman of abundant means, as well as of abundant charity and benevolence, founded and endowed a hospital for the dispensation of help and health, and started it upon a successful career, which continued for a length of time, with the general recognition of its good work and its usefulness, until, on one inauspicious day, and by another act of kindness and friendliness, he introduced into the hospital a woman, as she was supposed to be at the time, and placed her in a position of some importance and power. From the moment that she began the performance of her legitimate duties she seems to have been inspired with an eager desire, and a fixed purpose to use the privileges of her place for rigorous oppression and cruelty to those subjected to her rule, especially of her own sex. To make a long story short, the blind and unreflecting kindness and favor and increase of power bestowed upon her from time to time by her benefactor, stirred the "maggot in her brain," and her ambition mounted higher and higher, and transformed her into a hybrid, half woman and the other half wild-cat, with the final result of causing the resignation by her patron of his position as president of the institution, and also the same of nearly all of the governing management of the hospital. Congreve wrote these words long ago:

> "Heaven hath no rage like love to hatred turned,
> Nor hell a fury like a woman scorned."

This was in illustration of the passion of jealousy, but he might have added to his poetic strain the story of the effects of power given to a designing woman, particularly if she belonged to the genus spinster, with disappointed and bruised affections, the cruelty of which always lingers in her memory.

To return, it would be both interesting and instructive to reader and writer to consider the elective association existing between various microbes, and the as various diseases resulting from the dissemination of their toxine excretions through the body. We will make mention of only one more curious fact of the relation of a pathogenous microbe and its resultant disease that has just caught our eye from an open page of the French journal from which we gather so much that is useful and instructive in progressive medicine. "The microbe of hospital gangrene: M. Chauvel reports in a work upon hospital gangrene, a complication occurring frequently among the Kabyle convoys returning from Madagascar. In the pseudo-membranous pulp of wounds, a special microbe is found which often exists in an exclusive state. Its presence serves as diagnostic and prognostic of the disease." The few remaining suggestions we propose to make in this connection, must have reference to hospital hygiene, the devotion of its designs and purposes, not only to the restitution to health of those who seek hospital help, but also to the prevention of the dangers of hospital contagion to those who commit themselves to its beneficence, and are under its elemosynary protection. . Lastly, as to the hygienic measures adopted in hospital administration to prevent and cure disease. Without giving minute particulars of these measures in the great hospitals and charities of New York, we will repeat the broad assertion that no Bichat Hospital is possible here, and that all the protective means that the now wide and constantly increasing scope of antiseptic agencies can yield, are being used to the fullest extent, and with most renumerative efficiency. Without any purpose of invidious distinction, but simply as a recital of personal experience and observation, and impelled also by a sense of right and of a just acknowledgement of the honorable and conscientious performance of duty, and of the immense amount of good that is constantly being done by devotion to duty, we feel bound by the obligation always imposed by the golden rule of giving credit where credit is due. Under the stress of that obligation and from a clear conviction, through an ample experience of the absolute truthfulness of every statement we now propose to make respecting the subject of hospital hygiene, we do not hesitate to declare that we can signalize the administration of the Metropolitan Hospital on Blackwell's Island, now under the supervision and control of Dr. George T. Stewart as its Chief of Staff, and aided by the most unusually enthusiastic and competent co-operation of all connected with the institution, directly and indirectly, as meeting and fulfilling all the requirements of hospital hygiene in every sense, more fully and completely than any institution with which we are familiar personally, and know of through the testimony of general report. As seems to us, no one can pass through the entrance into this hospital without being impressed with the spotless cleanliness that pervades everything upon which the eye may rest, and the same can truthfully be said of every advancing step which the visitor may make in his round of inspection. In as few words as possible we propose to give the programme of the hygienic operations that make the rule of daily and weekly duty, always faithfully observed, and never allowed to suffer neglect or imperfection of detail.

1st. The entire hospital is thoroughly cleansed once a week by a certain set of women under the inspection of the matron.

2d. Every morning, each ward undergoes additional cleansing and purification by employes assigned to that duty. This embraces the washing of the walls, and especially is this duty observed in those wards devoted to phthisical patients, who under no circumstances, are allowed to defile them with phthisical expectoration. This last is received in vessels with covers adjusted, and in each one there is always half an ounce of solution of carbolic acid to maintain constant disinfection, the special object of the cover being to prevent the dissemination of contagious elements by flies, insects, etc. No hand-

kerchiefs are permitted, nor expectoration received by cloths; but should this occur, they are either burned, or soaked in a bichloride solution, then washed with soap and chloride of lime.

3d. Upon each bed there is a perfectly clean, white spread, closely inspected every day at 4:30 P. M., and every spot removed, or a new spread substituted, same with pillow cases, blankets, etc. Each bed is carbolized once a week, and all bed frameworks painted with paint strong with turpentine, and very little oil, woodwork cleansed with kerosene, ventilation free, temperature 65°. As a deodorant through the hospital, and expressly in the phthisical wards, the exhalation by evaporation from a stove of the solution of the oil of the pinus silvestris, 3 parts to 1 of the oil of thyme, is thought to be an important element of the general disinfection, besides being both grateful and healing to phthisical lungs. The head nurse is held responsible for the cleanliness of her ward, and each subordinate nurse for her division.

4th. Every morning the rounds are made by the Chief of Staff and Superintendent, followed at a later hour by the Directress of the Training School with her nurses, to be repeated so that supervision is constant and complete.

5th. In the surgical department, and especially in the operating room, all dressings are sterilized, and all the clothing of operators and their instruments equally so; no sponges allowed, the use of sterilized cotton instead.

6th. Every patient applying is subjected to medical inspection before entering the hospital. This is to prevent the introduction of contagious diseases.

7th. As respects the hospital contagion of phthisis, but few evidences of this have been observed; indeed, only two could be distinctly traced. So it will be seen that nothing is wanting to insure as perfect hospital hygienic purity as can possibly be devised, and it is maintained uninterruptedly and inviolably.

A few words in relation to the administration of the affairs of hospitals in general, and while we shall "nothing extenuate or set down aught in malice," we shall not hesitate to express our convictions as to the evils that so abundantly prevail in so many of these institutions devoted to charitable purposes, and caused, in our belief, by too much government, if the expression may be used. While many of the old time aphorisms, nursery rhymes and laconisms that are taught us in early life, are true and stand the test of time, yet there are many others that experience teaches are not only not true, but absolutely pernicious in their operation, and very far from verifying what they propose to teach.

In the matter of its application to the government of hospitals and kindred institutions one of these wise old saws seems to us peculiarly inapplicable and inoperative. It is that one which tells us that "In the multitude of counsel there is wisdom." The per contra of "too many cooks spoil the broth" is, to our way of thinking, by far the safest guide in the management of these hospital communities. We are no believer in boards of trustees, and above all—though we are loth to say it—if the organization be of the gentler sex. To the best of our knowledge and belief, there are not many elements of permanency or harmonious co-operation in such an organizations. The reports that come time and again of bitter dissensions in the hospitals attest but too clearly the truth that a more limited form of government would serve the purpose of hospital efficiency very much more favorably and thoroughly than that seen as the outcome of government by boards of trustees, either male or female. To revert to the Metropolitan Hospital on Blackwell's Island and its admirable management, we will sum it up in a few words, and say that under the control and management of Dr. G. T. Stewart nothing is wanting to insure and effect, day by day, the most thorough and complete efficiency in all its hospital details by the monocracy, if we may be permitted the coinage of the word, as exercised by Dr. Stewart. After a sojourn of several months in the hospital we have yet to hear a single note of discord, and all and every detail of the various duties and operations we have already enumerated go on like clockwork, and we are glad to name the hospital as a model institution and abundantly worthy of imitation. We wish we had space to give in detail the history of the work in every department of practical medicine that goes on daily and hourly under the sheltering roof of this most excellent institution. It would be but a just tribute of praise and congratulation to one and all engaged in the performance of his and her several duties, and the thoroughness, conscientiousness and completeness with which every requirement of duty is met and successfully accomplished.

ON STATE EXAMINATIONS.*

Mr. Chairman and Gentlemen of the Committee:

For twenty years before I became a member of the Board of Regents, I was deeply interested in the subject of medical education. In an address delivered before one of the State medical societies in this city, on February 28, 1861, I urged upon the profession that every physician should understand Latin, moral, intellectual and natural philosophy, chemistry and all the English branches, and stated that it was very desirable for him to superadd to these a knowledge of French and German, and also expressed the desire that the study of medicine should be extended through four years instead of three. During the thirty-six years which have elapsed since that time, I have had abundant opportunity to see the importance of the preliminary education then suggested. In connection with other gentlemen, I was one of the originators of the law of 1872, which was the prototype of the existing statute creating the State boards of medical examiners. In conjunction with other physicians connected with all schools of medicine, I was actively enlisted in obtaining the passage of the laws of 1890 and 1891—by which the present boards of State examiners were finally created, and I was instrumental in formulating the law of 1889, relative to the preliminary education of medical students. No man now living in this State has had deeper or more abiding interest in the subject which we are this afternoon considering than he who now addresses you.

* At the hearing on the Stanchfield bill (Assembly No. 728, Int. 653) before the Judiciary Committee, February 19, 1896, Hon. Wm. H. Watson, M.D., Chairman of the Regents Committee on Examinations, spoke as follows:

Prior to the passage of the law providing for the preliminary education of medical students in 1889 (chap. 466), and its amendments by the law of 1890 (chap. 499), and the passage of the law creating State boards of medical examiners in 1890 (chap. 507), the average standard of medical education in this country was so low, both in the abstract and in comparison with the other learned professions, as to have given rise to an urgent demand for its elevation, from within, as well as from without the profession.

This deplorable state of things had arisen from the fact that there was *no standard of qualification* for admission into the profession, except that which each one of the 123 medical colleges (twelve of which were within our own State) chose to adopt. In only 60 per cent. of these colleges was any examination required preliminary to the study of medicine, and in most of the cases where it was required, it was of the most elementary kind, and was determined by those who were pecuniarily interested in eventually granting diplomas to the matriculants of these colleges, with all the advantages which could accrue to the possessors of the said diplomas. Many of these colleges were carried on as purely commercial ventures, and each college established such a grade of qualification as was most conductive to its own interest. The schools desired to obtain all the students possible; the student wished to get all he could with the least expenditure of time and money. Hence the tendency was for each of the incorporated medical colleges to underbid the others in the paucity and laxity of its educational requirements. It had come to pass that the profession, which, more than any other, imperatively demands the very highest critical acumen—the facility akin to a quick and unerring instinct of differentiating similar cases of disease—the power which to the physician is worth more than all others, since upon it necessarily depends all his subsequent procedure in the treatment of disease—the ability to make a correct diagnosis, without which the judicious management of a case is impossible—that the profession which demands the exercise of that sagacious judgment which, like the scale of justice, is capable of weighing the smallest particles and of detecting the slightest variations, was very largely composed of men with degrees conferred upon them by authority of law and by institutions duly organized and chartered by law, who were more inadequately prepared in all branches of fundamental knowledge and in those preliminary studies which form the basis of subsequent education than the members of any other profession. Said President Eliot, of Harvard University, in his report of 1879–1880: "An American physician or surgeon may be and often is, a coarse and uncultivated person, devoid of intellectual interests outside of his calling, and quite unable to either speak or write his mother tongue with accuracy." The laws of 1889 and 1890 and their subsequent amendments were enacted, and in the short space of five years the State of New York has come to enjoy the proud position of standing in the very vanguard of medical education. To-day, however, we are confronted by the proposition contained in assembly bill No. 728, to again allow the medical colleges themselves to establish their own educational requirements and to supervise the preliminary examination of those intending the study of medicine. Whence emanates this bill, which, if passed, would at once undo all that has been gained in the matter of the advancement of medical education, and degrade the imperial State of New York from the proud position which she now enjoys? Does it proceed from the best institutions of the State? From those medical colleges from which the largest percentage of graduates have been able to pass the State boards of examiners with honor to themselves and credit to their *almae matres*, and obtain a license to practise? Do the professors of the College of Physicians and Surgeons of New York, of the Medical Department of the University of the City of the New York, of the New York Homœopathic Medical College and Hospital, of the New York Medical College and Hospital for Women, of the Women's Medical College of the New York Infirmary, of the Eclectic Medical College of New York City, of the Long Island College Hospital, of the Albany Medical College, of the Medical College of Syracuse University, of the Medical Department of Niagara University, of the Medical Department of Buffalo University appear here as sponsors for the bill? Do they complain that students from other States and countries are being driven away from New York medical schools, and that the advanced requirements are closing their doors? I do not so understand it. The representative of only one medical school has made such complaint. This law is for all, and not for the small minority of one of the medical colleges of the Empire State. Why, Mr. Chairman, the government of Harvard University has recently decided that no man can enter upon the study of medicine at that institution unless he has previously been the recipient of the degree of Bachelor of Arts from some college duly registered as qualified to confer it. Can it be that the great State of New York shall lag so far behind in the education of those who are to care for the health and life of its citizens, as not ultimately to require of them even a high school education as a preliminary to the study of medicine? The very suggestion is preposterous, and a disgrace to the intelligence of him who makes it. No, Mr. Chairman, the present law is a good law—a satisfactory law, and while it confers no special or peculiar privileges upon any class of the community, it is one that by its liberal, impartial and entirely catholic provision has commended itself to the good sense of the people of this State, as well as gained the hearty and cordial approval of those members of the medical profession of all schools of practice who, by their education, their character and their professional attainments, are the best qualified to judge. In this State we are especially fortunate in having a central educational and administrative body to pass on preliminary requirements for medical education, and to supervise and conduct the examinations for medical licenses. The Legislature has wisely placed the matter under the control of the Board of Regents of the University of the State of New York—an absolutely impartial court—and it is so administered that collusion, laxity or partiality is impossible. The possession of a license from the State boards of examiners of New York is an assurance to the public of the qualification of him or her who shall attain it, and is therefore a legitimate passport to professional success. The archives of the University will forever attest to any one interested, the exact tests relative to his or her preliminary and professional knowledge applied in the examination of any man or woman who has earned its endorsement. It is to-day by scholars and publicists conceded to be the most perfect system in the world. The absolute necessity of the methods adopted by the State through its Board of Regents, is now fully confirmed by the fact that more than 26 per cent. of those who have applied for license (all of whom under the laws which existed prior to 1890 would have been entitled to practise merely from having been graduated as doctors of medicine) are now rejected as incompetent, on account of their ignorance, to practice upon the citizens of this Commonwealth, and have betaken themselves to other States whose inhabitants are less fortunate in being protected by suitable statutory enactments. The profession, the medical schools and the people have now become accustomed to the existing law. It would be unfair to change it. While the standard is above that established in most of the other States, it is by no means equal to that of Johns Hopkins University or Harvard, and in the judgment of the speaker is yet insufficient, and certainly is not on a par with the requirements exacted from students in other professions in our State. To lower it would be to degrade the profession, to humiliate the State and to inflict a grievous injury upon the people. It would set back the hand upon the dial of progress for at least twenty years. I beg you, gentlemen of the committee, let it alone—let it alone.

Cancer is contagious, the contagion taking place through direct inoculation, and also by means of soiled linen and clothes. The period of incubation varies from a few months to several years.

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REMOVAL.

The office of this Journal will be removed, May 1st, to 180 West Fifty-ninth street, Central Park South.

Changes of standing advertisements and communications in regard to that department, should be addressed to BENJ. LILLARD, Advertising Manager, 19 Liberty St., N.Y.

MEDICAL EDUCATION.

THE life-long devotion of Regent Watson to the cause of medical education, the measures he has inaugurated, looking to the higher education of our profession and the better protection of the public health, entitle his speech, recently delivered before the Judiciary Committee of the Legislature, as chairman of the Regents Committee on Examinations, which we publish on another page, to more than usual weight, and the most careful and thoughtful attention.

Dr. Watson passed two years in Europe, 1881-1883, and made a critical examination of the different systems of medical education in various countries. On his return he delivered an address on Medical Education and Medical Licensure at the Twenty-Third Convocation of the University of the State of New York, held at Albany, in July, 1885. In this address he showed that the scope and relations of the medical profession demand a high standard of education in its candidates, in order to ensure the greatest efficiency in its practitioners, and demonstrated that the standard was then so low as to have given rise to an urgent demand for its elevation. He strenuously insisted that it is the prerogative of the State to determine the educational qualifications of those who are to care for the lives and health of its citizens, and that there must be an entire separation of the teaching from the licensing interests, and outlined the proper conditions of licensure are as follows:

(1) A fairly liberal preliminary education.

(2) Four years of professional study.

(3) Examination and licensure by an impartial court appointed by the State.

Dr. Watson, during his whole professional life, has held sound medical tenets and principles. While his position has been in advance of that of his associates, the profession in every instance has finally adopted the propositions which, as a wise and prudent leader, he originated, described and earnestly advocated. As early as the year 1861, in an address before one of the State medical societies, he urged the lengthening of the term of medical studies from three to four years in the following words: "Let us seek to introduce and maintain a higher standard of professional requirements. I would myself desire that the time required for the study of medicine should be extended to four years instead of three." In his place as a member of the Board of Regents, as also on all other suitable occasions, he has endeavored to promote the general welfare of the medical profession, and also more particularly to elevate its standards. His influence in behalf of the latter is shown by the following extract from the record of the minutes of the Board of Regents for 1889, page 532:

"Dr. Watson asked the Regents to approve and request of the Legislature favorable action on the bill for giving to medicine the same statutory safeguard against illiterate practitioners now given to law by the law students' examination. After reading, it was voted that the Committee on Legislation be directed to support the passage of the bill."

It will be seen that Dr. Watson has the satisfaction of having witnessed the complete adoption into the form of law and into the tenets of the medical profession, of the three great reformatory measures to which he has given special thought, and for the success of which he has labored with undiminished energy and zeal.

These great principles having now been fully adopted into the form of law, and cordially accepted by the thoughtful, well-educated and enlightened members of all schools of practice in the medical profession of this State, Dr. Watson could never, without self-stultification, consent to the lowering of the standards of medical education which he has labored so long to reach, and which are now giving New York a proud position among her sister States, and tending to eliminate pretenders from the practice of the profession, while they are at the same time an inducement to highly cultivated physicians from every portion of the country to locate within the borders of this Imperial Commonwealth.

His able and exhaustive argument before the Assembly Committee on the Judiciary, in opposition to the Stanchfield Bill, the passage of which, at one fell swoop, would sweep away the standards of medical education in this State, should be, and we trust will be, conclusive against it.

The profession in this State has been fortunate in having a leader within its ranks, of that broad and liberal culture, that sincerity of purpose and untiring zeal in the cause of progress, to inaugurate and push forward, step by step, those measures which are doing so much to fill the ranks of the profession with men of greater culture and minds more carefully trained in all the details of their work, and to insure to the public greater protection to life and health. Dr. Watson was eminently fitted for leadership in the work in which he has accomplished so much, and for which he will long be held in grateful remembrance, by his rare scholarship, the clearness of his judgment, the force of his logic, and the sincerity, the honesty and intelligence he brought to bear upon every measure he advanced. In forty years of active, professional labor, in every official position he has held, as a founder and for many years trustee of the Middletown State Insane Hospital, as Surgeon-General of the State, as United States Pension Examining Surgeon and as Regent of the State University, there have been two pre-eminently distinctive principles upon which his whole professional life has rested, and these are:

1. No sectarian tests as a qualification for office, and no sectarian monopoly of State or National institutions.

2. The elevation of the educational standards of the medical profession.

It is a matter of congratulation to Dr. Watson to find the principles to which he has devoted the best energies of his life so fully recognized in the greater liberality, the broader culture and increased efficiency of the profession, not only in this State, but throughout the Western Continent.

THE SIGNIFICANCE OF PAIN.

IN a lecture at the Hospital De La Charité (*Milwaukee Med. Journal*), Prof. Potain spoke of the value of pain in the diagnosis of disease, and stated that its absence usually made the prognosis more sombre, latent affections being grave because they develop freely without any warning to the patient. It is because of the absence of pain that many affections have remained so long obscure and have caused great ravages, such as endocarditis, chronic nephritis and aroitis. Certain diseases, usually painful, may sometimes exist without this symptom; in walking typhoid fever the pain is so slight that the patient can carry on his ordinary avocation until intestinal perforation occurs, causing rapid death. In pleurisy the pain, sometimes so great, may be absent, but the disease is none the less serious on that account. Cases of angina pectoris in which there is no pain are the most dangerous.

Certain diseases consist only of pain, such as gastralgia and enteralgia; in others pain is the predominant symptom. It should, therefore, be studied with the greatest care, and its characteristics fully determined. Its intensity is what naturally strikes the patient, but this is not at all proportionate to its cause, and depends upon individual conditions. It is well-known that certain races are but slightly sensitive to pain, and that education plays a great part in this sensitiveness. A reliable physician states that there is at Chantilly a colony of English jockeys who, accustomed to horseback riding, are liable to numerous fractures, but seem to feel only slightly the pain caused by them; while their wives with but rare exceptions, never utter a cry during delivery.

The intensity of pain is of value to the physician only when it is excessive; for instance, an intensely painful spot in the side may indicate gangrenous pleurisy; the appearance of peritoneal pain in typhoid fever may indicate perforation of the intestine. The seat of the pain has but little relation to the disease; thus the painful point in pleurisy is nearly always the same, no matter what may be the precise location of the inflammation. The only exception to this is the pleuritic pain of tuberculosis. Dorsal and substernal pain ordinarily indicates an affection of the œsophagus, but to make an exact diagnosis it is necessary to use the sound. Gastric pain indicates the location of the disease, as a general rule, and the patients are not deceived when they complain of pain in the stomach. Disturbance of the biliary passages is generally marked by pain in the right hypochondrium to the other. Nephritic colic causes pain along the corresponding ureter. Vesical pain is easily recognized because of the tenesmus which accompanies it. There are pains, the seat of which is pathognomonic, such as angina pectoris, where it is prethoracic and radiates into the left arm, and sometimes in both arms. To this rule, however, there are many exceptions. Hepatic colic may cause pain only in the epigastrium and simulate gastralgia, while epigastric pain is often related to alterations of the solar plexus, such as that due to aneurism of the abdominal aorta.

Reflex pain is also an important aid in diagnosis. It is necessary to bear in mind, in this connection, the dorsal pain in gastric affections; the scapulalgia of hepatic colic; the pain in the posterior portion of the deltoid region in diseases of the liver; the irradiations of nephritic colic into the testicles and thighs; the brachial and cervical pains of angina pectoris; the costo-xiphoidal pain of diaphragmatic pleurisy and pericarditis. Rectal pain often extends to the thighs, especially in elderly, constipated men, and such pain should always call for a rectal examination. In affections of the colon pain is frequently felt in the precordial region. Chronic colitis causes the arrest of fæcal matter at the bend of the intestine between the transverse and descending colon, and the precordial pain arising from this is a source of frequent errors in diagnosis. Of 100 persons complaining of heart disease, about seventy have some affection of the colon. Ovaritis often gives rise to intercostal pain, and when the cause of a persistent neuralgia of this region in a woman cannot be found, it is well to consider the possibility of ovarian trouble.

Pain upon pressure gives more precise information to the physician than any other. When this exists at the points of emergence of nerve branches only, it indicates a neuralgia. When it exists along the entire course of the nerve the case is one of neuritis. The absence of pain upon pressure in cases of spontaneous pain indicates its reflex nature.

THE ALL-SEEING EYE.

WITH the new eye which science has recently given us some of the hitherto most closely guarded secrets of Nature are clearly unveiled. Through it the dark becomes light, and the opaque transparent. When the world was startled with the results and the possibility of the Röntgen ray we predicted that we were on the eve of discoveries in the physical and spiritual world unequaled in human history, and at no distant day the photographic plate would cease to be a necessity in recording the image, as science would perfect some process by means of which the eye could follow the rays through hitherto impenetrable substances. Edison has already reached that point. With the powerful cathode light behind his patient he gazes through a screen of prepared chemicals and sees every organ of the body as plainly as he sees the dishes on the dinner table. The fluorescent substances used in the screen are tungsten and calcium. These two elements are fused in a furnace, and at a proper degree of heat form little crystals. These crystals are glued to a piece of paper by a transparent celluloid paint, and form a coating whose sensitiveness is six times greater than a similar coating of platinum barium cyanide.

If the subject stands very close to the light, the body is perfectly transparent, and nothing whatever is seen. The light goes through bones and everything, just as sunlight goes through glass. If the patient steps a foot or two away from the light, the human skeleton stands revealed. A step further from the light, and the muscles, tissues and organs of the body appear as plainly as if there was no outside covering of flesh. We can thus, by changing the focus, diminishing or increasing the light by a larger or smaller number of tubes, see just as much or just as little as we desire.

A man comes to a surgeon with a bullet in his arm ; the surgeon takes his X ray lamp and his fluorescent screen and locates the bullet. He looks through the arm, through the bone if necessary, and sees just where the bullet is lodged. The bone may be fractured. The ray is turned on, and the surgeon is no longer compelled to pull and twist, for he can see the fracture with his open eyes, and can as readily join the parts together as the cabinet maker can unite pieces of wood to form an almost invisible joint. No photograph is necessary for the fluorescent screen, and the rays have made darkness visible. If these rays had been turned upon the stricken Garfield, the track of the bullet and the bullet itself might have been seen, and possibly the life of the President saved.

These onward steps in science necessitate a corresponding change in college curiculum of study and the aids to investigation in hospital and private practice. Hereafter every well-equipped college and every well-equipped hospital must include in their facilities for study and work bacterological culture and the Röntgen ray with Edison's fluorescent spectacles. The attention of scientists is now being directed to the action of the ray upon that germ life which kindles into active force so many forms of disease. What at first seemed a mere scientific toy is opening one of the broadest avenues of scientific investigation upon which the mind has everentered.

In this connection the recent statement of Mr. Denshah, one of the few remaining followers of Zoroaster, in a recent lecture, is of interest from his high position as a general scientist and an electrical expert. Mr. Denshah identified the X ray as one manifestation of what has for several years been known to Eastern scientists as astral light, or the seventh dimension of matter. He

said that Western scientists were several thousand years behind the times, and predicted that as a result of Edison's experiments with the X ray he would soon be able to see through fifteen feet of solid matter.

JAPANESE MEDICAL STAFF.

THE Imperial Government of Japan permitted Col. W. Taylor, Army Medical staff, detailed by the British Government, to accompany their army in the field in the late Chinese war. Col. Taylor's report of their medico-military work has just been published. Although not taxed to nearly its capacity as a whole, the Japanese medical service, at the front and on the line of communication, as well as at the base, was admirably managed. With a forethought that English speaking nations might well practice, the Japanese had given their officers and men constant opportunity to master in time of peace every duty, and to be practically familiar with their entire equipment. It was owing to the careful regard of that principle that, as Col. Taylor expresses it, the actual work of the medical department was "easy, smooth and efficient," and the department was "able to go through its first campaign with such brilliant success." Nothwithstanding the occasional necessary overcrowding, "there were no cases of septicæmia." That speaks volumes, not only for the Japanese, but for the future. It establishes a record, a mark below which military surgery hereafter should not fall, but doubtless will. But to those, whether medical or lay, who remember what appeared to be the pathological necessities of the Rebellion, the surgical millenium would seem really arrived when that could be truly written. Very singularly, although the gospel of cleanliness and of asepsis was scrupulously followed within the hospitals, sanitation properly so called outside of them was not provided for by the regulations, and it was only after a long time that the Japanese seemed to be awake to its importance. When aroused they acted with their usual intelligence, energy and thoroughness, and, as in the case of Kinchow, they placed in a good sanitary state "a town which had been occupied for hundreds of years by the filthiest people in the world." The Japanese system is by no means perfect. For instance, their transport service is under dual control; and as no man can serve two masters any more successfully in the nineteenth century than in the first, some of the disabled who required moving suffered.

One instance of the gallantry of the medical corps is noted at Wei-hai-wei, where, as a regiment exposed to the sudden action of the quick-firing guns of seven vessels had many men killed and wounded in a very few seconds, and was obliged to fall to the ground and crawl to shelter to escape annihilation, the medical officers, separately and accompanied by stretchers and attendants, walked across the beach in the face of an incessant hail of bullets, "and in twenty minutes stretcher-bearers, attendants, and medical officers, walking quietly and coolly away, had removed every dead and wounded officer and man from the beach, the Chinese ships having kept up a continuous and terrific fire upon them all the time." As the historian well remarks, "it was a splendid deed of heroism that can never be forgotten," and "it will be an enduring proof of the efficiency in the field of the Japanese medical service." Their special addition to the *armamentarium chirurgicum* appears to be the use of straw ash, which, free from grit and enclosed in antiseptic gauze bags, as devised by Dr. Kikuchi, was applied as pads to the wounds, and was very serviceable.

SECTARIAN MEDICAL SCHOOLS.

THE following editorial utterance, by Dr. Daniel Lewis, President of the State Board of Health, occurs in the January number of the *American Medical Review*. His main proposition must command the assent of every enlightened and disinterested member of our common profession.

"The recent gift of $1,000,000 to Chicago University, by Mr. John Rockefeller, in addition to his previous munificent contributions, has been followed by a semi-official statement that a medical department may soon be established in that institution. Should this report be confirmed, we beg to express the hope that the same broad principles may govern the new enterprise which have characterized this wonderful university since its very begining. The time is passed when any narrow sectarianism in medical education can succeed. The fact has become evident to all that there is a science of medicine whose foundations are comprehensive and permanent. * * * With the recent discoveries in every department of medical research, the practice of medicine and surgery is rapidly becoming scientific rather than empirical, and the demands which students make upon medical schools must be met by a course of instruction which rises above the narrow limits of sectarian medicine. Thus we are led to note with satisfaction that the old style of medical school is being superseded by those departments of our universities like Harvard, Columbia and Johns

Hopkins, which must ultimately result in relegating to the rear rank those who have been taught *only* a part of the science and art of medicine. The day is surely coming when the so-called pathies will be expressive of defective and insufficient medical education, while the simple word physician will be sufficiently explicit to include every qualified practitioner of the healing art. We have never been able to see any more reason for different schools of medicine than for sects in astronomy and mathematics, and the medical student of the future will surely seek the ample facilities afforded by the medical schools of our great universities, which the sectarian schools can never adequately provide. * * * 'Eclecticism,' 'Homœopathy' and 'Allopathy' are nothing more or less than trade-marks * * * and the sooner the public realizes the truth of the statement the better it will be for all concerned."

IS THIS A CATHODE RAY PICTURE?

DR. LEROY DIBBLE, of Kansas City, has been illustrating before a medical society, reproduced in the *North American Medical Review*, what he calls "Medical Unrest," with a query: "Does it Mean Revolution or Evolution?" "The practice of medicine was looked upon," he says, "until about twelve years ago as a profession, not a trade. It was about this time that the medical colleges began to assume a purely commercial aspect, with a few honorable exceptions. Every student was a professional advertisement to the men who graduated them; they had their feelers out for business in a double sense. The graduates would send them more students, and advertise professor so and so, and elevate them above the common herd. Are these so-called professors by education, experience and social standing above the general average? Most emphatically *No!* There are usually two or three shrewd men in these schools, above the average in the worldly sense, that own the controlling interest in the stock of the college, who gather around them as assistants and professors men of inferior ability, who revolve around them as mere satellites, depending on them for positions, who sing their pæans of praise and do their bidding as directed. No self-respecting medical man should hold such a position, and yet the competition for place is so great as a means of advertising one's self that there is no trouble in filling vacancies. The rank and file of the profession have been taught to look up with almost pious reverence to these institutions and the men associated with them. The question is, Do they deserve it. The learned author, in putting the finishing touches to his picture, answers his query 'Does it mean revolution or evolution,' with 'all this is but the volcanic eruption which presages the long calm that will indicate the law of evolution in medicine.'"

ALCOHOLIC BEVERAGES.

THE *British Medical Journal* publishes some interesting results of investigations of M. Daremberg as regards the intoxicating principle of alcoholic beverages. M. Daremberg states that pure alcohol at 10° is less toxic than impure alcohol, such as brandy, and, above all, old brandy at 10°. Brandy made from wine at 10° is less toxic than wine at 10°. Brandy is in fact wine purified. "The intoxicating element in wine is not present in the part distilled, but in the residue. Red wine is more intoxicating than white wine; the latter is produced by the fermentation of the juice of grapes, whereas the red wine is the product of the fermentation of the juice, skin, and pips of grapes. It is the bitartrate of potassium which constitutes the special intoxicating principle of red wine. French beer contains 5 per cent. of alcohol; fifty cubic centimeters injected into the veins of a rabbit produced no result. The different varieties of cider, on the other hand, were generally very intoxicating. M. Daremberg injected alcohol into the veins of rabbits rendered tuberculous three days previously. Alcohol chemically pure did no harm, but brandy and wine killed them rapidly. The wisdom of giving alcohol to tuberculous patients is therefore doubtful. The toxic quality of alcoholic drinks is not thoroughly evident when there is neither kidney nor liver trouble. Healthy subjects easily eliminate these toxic substances, which under certain circumstances may even be valuable as occasional stimulants."

MARS AHOY.

MR. NICOLA TESLA thinks that within a short time we may be on speaking terms with Mars and other planets by means of electric waves. He thinks that such waves would communicate to other planets, just as disturbances of the sun are transmitted to the earth and produce disturbances here in the form of thunder showers, the transmitting of disturbances showing beyond doubt, that waves of electricity are propagated through all space. The idea is to utilize the electricity waves propagated through the atmosphere and the ether beyond. The same principle

might be applied to transmit news to various parts of the earth.

As the earth is a conductor, an electric disturbance in one part ought to cause a change in the equilibrium of the earth's electricity, and therefore should be felt at all points on the earth's surface, and might be recorded by properly constructed instruments. Every city on the globe might be regarded as a big ticker circuit, so that a message sent from this city might be repeated in all the cities of the circuit throughout the world. Mr. Tesla has an instrument near completion, and is satisfied that the transmission of news about the earth, and even to the planets, by electric waves, is no longer a dream of the scientist.

GRAPE FRUIT.

THE grape fruit was rapidly growing in favor for its tonic properties, its delicious flavor and its grateful and cooling effects in the sick room, when the cold blast from the Rocky Mountains last year cut off nearly the entire supply from Florida, leaving us for the present almost entirely dependent upon the small supply from the West Indies. The terms shaddock and grape fruit have been used almost interchangeably, but notwithstanding both belong to the citrus family they are different fruit. The shaddock is the largest, coarsest, and least juicy of the citrus family. Grape fruit and forbidden fruit resemble each other so closely as scarcely to be distinguished. The grape fruit looks like a double-sized orange with a lemon-colored rind, while the forbidden fruit, of about the same size and color, is pointed at one end and has more of the flavor of the shaddock. The acid of the grape fruit differs somewhat from that of the orange and lemon, and in most febrile, gastric and intestinal troubles is much more grateful to the stomach.

COLDS.

A SURE remedy for colds, in their incipient stage, would be hailed as one of the most useful discoveries in our profession, and greeted with enthusiasm by physicians and patients. Dr. L. Duncan Bulkley, the distinguished skin and cancer specialist, claims in the *Medical Record* that there is an acid condition of the system developed which is sufficient to irritate the terminal ending of the nerves in the skin and mucous membrane, tending through susceptibility to impressions of cold by derangement of the capillary system. His remedy is to neutralize the acid condition, which he does by giving from 20 to 30 grains of the bi-carbonate of soda in a little water every half hour for three doses, repeating the fourth if necessary in an hour from the last. If the trouble is not relieved in from two to four hours the four doses are again repeated. Dr. Bulkley has found in the early stage this treatment is uniformly successful, but after the second or third day it acts with less promptness.

A NEW STYPTIC.

ANTIPYRINE almost since its introduction has been used as a styptic in nasal and other hemorrhage, applied in the form of a 5 per cent. spray or solution to the parts with great benefit. In other hemorrhages when parenchymatous oozing was taking place it has been equally successful. Dr. Roswell Park, of Buffalo, calls attention through the *Medical News* to a still stronger styptic by the combination of antipyrine and tannin in solution. The result is a precipitate of intensely agglutinative and cohesive substances. This applied to the bleeding part at once controls the hemorrhage.

CIVIL SERVICE RULES.

IT was recently claimed by the Comptroller of this city that civil service rules applied to the medical positions in the gift of the Commissioners of Charities. Judge Andrews has decided adverse to the claim of the Comptroller, inasmuch as the visiting and consulting physicians and surgeons are neither officials or employes within the meaning of the civil service acts; they receive no compensation; their positions, so far as pecuniary benefit is concerned, are purely honorary, and the Legislature had no intention that the most eminent members of the medical profession should be subject to the indignity of examination, either competitive or non-competitive.

ANTITOXIN PLUS INTUBATION.—Dr. Geo. Chaffee, instructor in intubation and tracheotomy at the New York Polyclinic, says (*Inter. Jour. of Surgery*, January, 1896): In diphtheria and croup, intubation has practically supplanted tracheotomy, and has ever stood ready when other remedies have failed, to save a large per cent. of our cases. Intubation will now be indicated less frequently than before the introduction of antitoxin, but the two—antitoxin and intubation—must go hand in hand, and on their record alone, they must, I think, stand out at the head of all treatment for diphtheria. At first one might think that antitoxin would leave no cases for intubation; experience and practice show otherwise. There will always remain a certain

per cent. of our antitoxin cases which will, from one cause or another, require intubation, and, if recognized in time, may, perhaps, be saved. None should be allowed to go without these remedies when indicated.

WE call the attention of the profession to the announcement of a physicians' tour among the health resorts in Europe the coming summer. The tour will be under the direction of Dr. I. Gowing Middleton, of Paris, whose personal examination and careful study of the health resorts in Europe give to his opinions the authority and the weight of a scientific and practical expert. This tour offers to the profession a combination of pleasure with scientific study on a broader scale and with greater care for personal comfort and contact with leading people in the world of literature, science and art than ever before outlined.

THE annual report of the New York State Board of Health shows the highest death rate in the maritime districts, it being there 21.20 per thousand, and the lowest along the southern tier of counties, it being there 12 per thousand. The highest death rate in zymotic diseases is in the Lake Ontario and western district, 308.31 to each thousand deaths, and the lowest in the Adirondack region. In the latter region, contrary to the general impression, the death rate in consumption is the highest in the State, being 114.50 to each thousand deaths. Typhoid fever is more fatal along the Hudson, where it is 33 per thousand.

PILOCARPINE-HYDROCHLORATE.—Dr. Aulde says of this remedy that in doses of $\frac{1}{60}$ of a grain every two or three hours, it has a most surprising effect upon the bronchial secretions, and will often allay a cough which cannot be brought under subjection by any other remedy.

BIBLIOGRAPHICAL.

A TEXT-BOOK UPON THE PATHOGENIC BACTERIA. By Joseph McFarland, M.D. With 113 illustrations. Philadelphia: W. B. Saunders, 1896.

This work is intended to convey to the student and physician a concise account of the technical procedure necessary in the study of bacteriology, a brief description of the life history of the important pathogenic bacteria, and sufficient descriptions of the pathological lesions accompanying the micro-organismal invasions to give an idea of the origins of symptoms and the cause of death.

Part I. is devoted to general considerations, which include the biology of bacteria and their culture, bacteriological examinations of air, water and the soil.

Part II. is devoted to the specific diseases and their bacteria, including the acute inflammatory, the chronic inflammatory, the toxic and septic diseases. The subjects are presented with marked clearness, the distinctive points being brought out in such a manner as to be strongly impressed on the mind.

WEIR'S INDEX TO THE MEDICAL PRESS. Published monthly. $3.00 per annum. Single copy, 25 cents. 32 South street, New York.

The above is the title of a new publication which will appear shortly. Its importance to editors and authors will be apparent to all, and we are authorized to say to our readers that copies will be sent for inspection upon application and the mention of this journal. We believe that the work is in competent hands, and that it will be well done.

ELECTRICITY IN ELECTRO-THERAPEUTICS. By Edwin J. Houston, Ph.D., and A. E. Kennelly, Sc.D. Price, $1. New York: The W. J. Johnston Co., 253 Broadway, 1896.

The phenomena of electricity and magnetism have been considered as pertaining either to the electro-static, the electric or the magnetic circuit, and the laws of these three circuits have been developed on analogous lines. The authors believe that this treatment is the key note to a clear comprehension of the numerous and often complex electro-magnetic phenomena met with in the application of electricity to electro-therapeutics.

DON'TS FOR CONSUMPTIVES; Or, the Scientific Management of Pulmonary Tuberculosis. How the Pulmonary Invalid May Make and Maintain a Modern Sanitarium at His Home, with additional chapters descriptive of how every consumptive person may apply the forces of Nature to assist and hasten recovery, and also how the defects of heredity may be best overcome. By Charles Wilson Ingraham, M.D., Binghamton, N. Y., February, 1896, pp. 218; small octavo.

This little volume is intended, as the title indicates, for the patient, and it contains much valuable advice which will not come amiss to the physician as well.

ATLAS of TRAUMATIC FRACTURES AND LAXATIONS, WITH A BRIEF TREATISE. By H. Helferich, M.D., Professor at the University of Greifswald; with 166 illustrations after the original drawings, by Dr. Joseph Trumpp. New York, William Wood & Co., 1896; pp. 142, large 12mo.

The book before us, which belongs to the series of superb atlases now being published, is an excellent example of the great value of these publications. The plates being true to Nature, and comprising every known abnormality in the department of which it treats, must be of practical service to students and to practitioners who treat this class of cases.

A HOMŒOPATHIC TEXT BOOK OF SURGERY. Edited by Charles E. Fisher, M.D., and T. L. Macdonald, M.D. Profusely illustrated. Chicago: Medical Century Co., 1896.

Our first impression of the book is not a pleasant one. It certainly, in mechanical work, is not a good specimen of book making, such as we are accustomed to see from the publishing house of Boericke & Tafel. The work is profusely illustrated, but the majority of the plates are not such as would be a credit to American art or American book making. Turning to the matter we are still more disappointed. We had been led to believe from the announcements which had been freely circulated through the Homœopathic press, that this work on surgery would rank with Goodno in practice, and contain the ripest thought and the most advanced teaching of the school of which it claims to be the representative. The work is a good one, as far as it goes, but the articles, though well written, are but little more than a reproduction and rearrangement of ideas gathered from the numerous standard works on surgery recently published. With the exception of the article on Bacteriology and Pathology by Dr. Laidlaw, there is so little originality in the volume that there is really no place for a critical review. Dr. Laidlaw's work, in text and illustrations, is that of a scholar and artist, of which too much in praise cannot be said.

Judging from this volume the line of demarkation be-

tween Homœopathic surgery and the standard authors of the old school is so faint as to hardly require a work of 1,400 pages to present it. The young Homœopathic graduate will very probably include this book in his library as a good working text-book, and will find it to answer, for the present, his purpose as well as any other.

PART III. of the Pictorial Atlas of Skin Diseases and Syphilitic Affections, from models in the Museum of St. Louis Hospital, Paris, published by W. B. Saunders, contains four full-page photolitho chromos, with explanatory wood cuts and text. The illustrations, in color and accuracy, are like a reproduction of the diseased tissues in all its minute details.

CORRESPONDENCE.

THE HOMŒOPATHIC TEXT-BOOK OF SURGERY.

Editors of the NEW YORK MEDICAL TIMES:

It has been my opinion for a long time that a school of medicine occupying the position of the Homœopathic school, is entitled to show itself in surgery by a composite work, as in the "American Text-Book of Surgery" written by old school authors. We have been notified for more than a year that this work was forthcoming. When first announced that we were to have a text-book written by the surgeons of the Homœopathic school, we must confess the disappointment incident to it that the name of some distinguished surgeon, who had already won distinction as a writer, teacher and operator, had not been placed to represent it as editor-in-chief. That there are surgeons in the Homœopathic school of ready resources, of ripe experience, standing side by side with the most brilliant and the best in any school, no one familiar with the history of surgery in this country can doubt. Under the critical eye of such a surgeon we think the supervision of so important a work as a text-book by members of the Homœopathic school should have been placed. In this way, and in this way alone, would the distinctive points of a surgery by the Homœopathic school, if there are any sufficient to warrant a text-book, be brought into clear prominence.

The "American Text-Book of Surgery" has for its editor-in-chief no lesser light than Wm. Keens, M.D., LL.D., a professor of surgery in the Jefferson Medical College, and one of the most distinguished surgeons of the old school. It will be observed in this "American Text-Book of Surgery" that the various articles were submitted in proof sheets to all authors for mutual criticism and revision. As a whole, therefore, the work may be said to express upon important surgical topics the consensus of opinion of the surgeons who have joined in its preparation.

Although it must be understood that, while it thus represents the views of all authors, each individual author is free from absolute responsibility for any particular statement, as the final opinion of the surgeons was under the supervision of the editorial chief, who is recognized as an able critic. We do not agree with the editor-in-chief of the "Homœopathic Text-Book of Surgery" in his preface, that a work should be issued to gratify "the exceedingly satisfactory development of surgical ambitions among members of the profession." A work representing modern surgery, written by representative surgeons of the Homœopathic school, was surely a desideratum. So far as the law of Hahnemann is concerned, there is very little of it to do with surgery. The study of reflexes, to which our attention has been particularly directed through the aggressive efforts, practical demonstrations and exhaustive writings of Prof. Pratt, has shown the fallacy of many symptoms and the nonsense of many a prescription. We are not questioning the law enunciated by Samuel Hahnemann in regard to the specific action of drugs.

Pathology and differential diagnosis, however, had not reached that degree of perfection to which we have arrived at the present day. We know now that a pain in the heart does not necessarily mean a disease of that organ, but may be a reflex from a remote part of the body, owing to the manner in which the nerves are distributed; we know that a terminal branch of a plexus of nerves may give a cry of pain which may be indicative of a disease or functional disturbance transmitted from a branch involving an organ which may be distinct from the seat of pain and involving an organ in a remote part of the body. Symptomatic indications, therefore, in a case of this sort, must be excluded, and the painful nerve traced to its root, and from thence to the causative point of pain. This is the only scientific method of dealing with disturbances. So much for the therapeutic feature of a surgery of the Homœopathic school. A work of this kind should not have been launched to the profession as this has been, even though the various authors of articles may be distinguished in respective fields of surgical work. The editor-in-chief again states:

"And the greatest amount of liberty allowed individual authors in expressing their views in relation to medical and auxiliary measures and treatments." Individual opinions should have come under the competent and critical eye of a properly equipped editor-in-chief rather than one disclaiming responsibility. An irresponsible work arranged as the one under consideration, holding each author responsible for his article, would have been more convenient in locating authors of the articles had the method been used as in the "Encyclopædia of Surgery," the names of the authors being placed directly under the subjects written upon. This work cannot be recommended to students, for none but advanced surgeons can judge of its misleading advice.

We do not think it necessary to issue a work containing over 450 more pages than the "American Text-Book of Surgery." We have books on special subjects, as the eye and ear, and therefore this one should have been written with less verbosity on these subjects. But verbosity is the characteristic of the work.

Does the book in question represent the most modern ideas of surgery, and have the surgeons of the Homœopathic school been recognized in all of the developments in the line of surgery, or surgical apparatuses? We look in vain for the Gorham surgical bed—a bed so superior to any other that any comparison is invidious.

Above *all things* the genius of the school should be recognized. It does not make a surgery representative of the school to copy the ideas and the treatment from standard books, though the author be a member of the Homœopathic school. We also fail to see any mention of the name of Northrup, of Philadelphia, who invented, *three years ago*, an apparatus for administering chloroform and oxygen, which really removes all danger of the use of this anæsthetic. This is a most *important advance* in surgery, and deserves especial attention. The pulse becomes stronger, and the color of the patient anything but blue, pinched or pale, by this method of the administration of the anæsthetic. And so we might go on, showing omissions and commissions all the way through. It is a fact not understood by three of the authors, at least, of this much lauded work, that the illustrations presented with their papers were indiscriminately appropriated to illustrate other articles, *not* written by themselves, inferior ones being placed in their stead from other sources.

In one article, no less than nine illustrations were transferred in this manner.

In the Treatment of Carbuncles.—It has been found the treatment for this condition is not at all modern in this work. Instead of horizontal lines, crucial ones are preferable. Instead of curetting, we have found that injecting with a lachrymal or ordinary hypodermic syringe, from center of opening to periphery, using an antiseptic solution, more efficacious, one prescription used, for instance, being 20 drops of carbolic acid, 1 drachm of glycerine, 3 of water. Instead of moist applications, which encourage the spreading of the carbuncle, we circumscribe it by painting with collodion from beyond the periphery to the center, leaving an opening of one-fourth of an inch, then dressing antiseptically. This arrests the difficulty at once. It is not new, as French journals have advocated methods in this line for years. In the treatment of gangrene we see no mention of that most invaluable of all remedies, *bromine*, which was used in the War of the Rebellion *more success-*

fully than any other remedy. The same omission occurs in the treatment of septicæmia, where this most valuable of all remedies is omitted.

In regard to tetanus, which depends in most instances upon bacterial poisoning, and for which excision and cauterization are recommended, to destroy the poison of course, nothing equals bromine, applying it to the part in the proportion of 1 in 50.

With the material constituting the Homœopathic work on surgery, under proper revision and abridgement by a leading surgeon, we believe a work might be constructed which would reflect credit upon that element of the profession constituted in the Homœopathic school of medicine.

Chronic Prostatitis.—We fail to find mention of that most invaluable remedy, chloride of ammonia, for this most disagreeable and distressing disease, chronic prostatitis. It is a very old remedy, and has long been recognized for its value in reducing hypertrophy of glands. Helmuth mentioned it in his work long ago. It will be noted we are criticising minor conditions, and not the brilliant major operations of our advanced surgeons. It is these difficulties, however, which give the surgeon his reputation, and in many cases the starting point of his career. The young surgeon begins usually by minor surgery, not by capital operations. How necessary, therefore, that this feature of the work be not only up to date, but *reliable.*

Perhaps there is no subject in the realms of surgery which has excited so much interest, which has been studied so carefully, and the technique of the operation developed to such a degree of perfection as that of appendicitis.

We believe the Creator made no mistakes and no omissions; neither did he neglect any detail in perfecting the wonderful machine called man.

To think that He failed to remove the appendix and left it for the surgeon to excise seems to us ridiculous, and should not be considered for a moment seriously.

First, it was some seed that caused appendicitis, but many other causes are now attributed to it, the latest being the bacillus coli comunis. There are also other forms of bacilli which are considered the cause of this difficulty. It would be a difficult thing indeed to find in the healthy individual the absence of some form of microbe-organism. It seems to us, therefore, that this considered cause of appendicitis cannot be true.

Fæcal matter is probably most frequently the cause of the lighting up of an inflammation in this blind infantile intestine.

One can soon be convinced by careful observation that appendicitis, in the majority of cases, is caused by neglect of the bowels. In this modern work, which is supposed to represent the most recent methods of managing surgical cases, we fail to note the most approved and advanced medical and hygienic methods in the treatment of this dire disorder.

Swain reports fully 90 per cent. of cures without the use of the knife. The "American Text-Book of Surgery," we believe, does not claim such a degree of success by the operative method.

Of the thirty cases which have come under the field of my observation, cases which include advanced conditions of peritonitis; cases with marked tympanities; cases where diffused peritonitis existed, with marked pain in the right iliac region, at times colicky in character, and often attended with persistent nausea; cases with a temperature ranging from 101° to 103½°, which have continued all the way from twenty-four hours to ten days, have been cured by mild forms of cathartics, of which sweet oil was the relaxing and soothing agent, heat and moisture in the shape of poultices, the auxiliary for combating inflammation, and colon injections for more thoroughly combating inflammatory conditions, as well as more completely cleaning the bowels. We claim, therefore, that the treatment laid down in the work under consideration is not only unreliable, but actually misleading and dangerous, and liable to prove disastrous to the patient, for the reason *that dry heat in any form must necessarily aggravate* an inflammatory condition, which in many instances has been caused by impaction. The whole treatment as laid down is so erroneous and so at variance with the conditions to be met, that we simply *warn* the profession in regard to following out the programme of treatment as there directed.

Under the head of rules, in summing up the article, we have always advocated that if pus existed, an operation was indicated. The second axiomic direction we consider inadvisable to follow, as any surgeon can prove if he understands the medical treatment. We know that a sudden attack, with increasing pain in right iliac fossa and high temperature, may be relieved in a few hours without the aid of the knife. It is a fact that some of the best surgeons claim that the safest and most successful time to operate is between the attacks, and not *during* the height of the inflammatory condition.

The third rule will not be necessary to follow if the case has been handled properly; the same with the fourth and with the fifth. To illustrate: An athletic gentleman came to the author a few months since with a history of chronic appendicitis—so diagnosed by one of the most celebrated surgeons in New York City, who had seen him twice, and each time advised that operative measures be resorted to. This patient then came under the observation of the author, and by judicious treatment was thoroughly cured. His last report was: "My physicians have been obliged to change their minds as to the necessity for an operation, as I am perfectly well."

In the treatment for hypertrophied tonsils, there is no mention of phytolacca, etc., and guiac, nor of the cautery puncture. The latter is used by the best specialists with marked success, and is free from danger.

Is there anything more common than a *sprain?* Yet you may look in vain in the index for such a difficulty, and no treatment is given for an accident which has often cost the loss of a foot. "The American Text Book" deals very intelligently on the subject. The book before us is advertised as "the crowning volume of the Homœopathic library."

I fail to make myself believe that this book is the "crowning volume in the library" of any physician, except as one to avoid for reliable information. Where are we to look for the marked difference between schools which warrant, in this volume, the distinctive designation of "A Homœopathic Text-Book of Surgery?" If the learned, experienced and distinguished editor, wishes to show in the title and contents of his book that the difference between Homœopathic and old school surgery is simply that between tweedledum and tweedledee, and that the name is only used as a "trade mark," the profession will judge of his success.

M. O. T.

PEDIATRICS: RHEUMATISM IN INFANTS.

In Darwin's work, "The Expression of the Emotions in Man and Animals," he quotes Sir C. Bell, who states that it is interesting to observe infants because "they exhibit many emotions with extraordinary force, whereas in after life, some of our expressions cease to have the pure and simple source from which they spring in infancy."

When the baby cries, it does so to attract attention to its discomfort. Mothers and those who have the care of infants, and sometimes even physicians themselves, seem to forget that these little ones who cannot tell us of their sufferings, are only making use of the means which Nature has given them to attract our attention and to induce us to find out the correct answer, which is often of vital importance to the question of, Why the baby cries?

It is my purpose in this paper to call attention to one cause which is very frequently overlooked by physicians in making a diagnosis in the diseases of infancy.

We may suspect rheumatism in infancy when continuous crying is not relieved by change of position, by nursing, feeding or fondling.

The suffering may for an instant apparently cease when some unexpected pleasure is afforded; or when some novel sight appears, or when some one enters the room whose presence is particularly welcome to the little patient; but

very quickly the face assumes the appearance of suffering, and the crying, moaning or restlessness is again noticeable.

So much is the sleep interfered with that the patient loses flesh and spirits, and presents other unmistakable evidence of being decidedly ill.

The diagnosis in such cases is very easily made to depend upon some imaginary ailment of the intestinal canal, since the suffering interferes with proper nourishment, and is almost certain to occasion some irregularity of the dejections. The patient may suffer from diarrhœa or general looseness of the bowels, with clayey or even greenish stools; or constipation may be continuous throughout the attack.

This disorder of the stomach and bowels may cease when the pain disappears, or may continue into the next attack.

The continued loss of sleep may induce decided symptoms of nervous disorder, still further masking the true character of the disease.

The pulse may not be seriously hastened nor the sounds of the heart altered, although these symptoms would be naturally more or less present in cases of severe and continued pain.

The anxiety of the attendants is apt to be so marked in these cases that reflexly the little patient is injured by over-attention, fruitless medication, or irrational change of diet, so that in a short time the sum total of all the abnormal conditions equals a condition simulating serious ailment.

Meigs and Pepper, in their article on "Diseases of the Heart," state that "the most common diseases of the heart in childhood are pericarditis, and acute and chronic endocarditis.

"The most frequent cause of these affections is rheumatism.

"Although this is a comparatively rare disease of childhood, yet when it does occur, the cardiac complications are in larger proportions than in adult life.

"Furthermore, it undoubtedly happens that many deaths occur before any decided diagnosis has been arrived at."

Dr. Howard, in his article on rheumatism, in Pepper's "Science of Medicine," states that: "No climate or locality is immune from rheumatism. Cold is the most frequent exciting cause, and this is especially effective when applied to the body when in a fatigued state, or when overheated, or when perspiring freely."

I have had reason to believe that gonorrhœa in one or both parents has been the cause of symptoms simulating rheumatism in infants.

Dampness and chill which can be borne by adults without especially attracting their attention are capable of inducing a sharp attack of rheumatism in infants and children.

Dr. Howard states that: "The latest modification of the lactic acid theory of Prout is founded upon the modern physiological teaching that during muscular exercise, sarcolactic acid and acid phosphate of potassium are formed and carbon dioxide set free in the muscular tissue, and that cold acting on the surface under such circumstances may check the elimination of these substances and cause their accumulation in the system. This view, it is held, explains why the muscles and their associated organs, the joints and tendons, suffer first and chiefly, because the morbific influence is exerted upon them when exhausted by functional activity; and it further accounts for the visceral manifestations and the apparent excess of acid eliminated during the course of the disease."

Hutchinson is quoted as saying that: "A catarrhal neurosis, the exposure of some tract of skin or mucous membrane to cold or irritation, acting as the incident excitor influence, is the neurosal theory of rheumatism."

Maclagan asserts that "rheumatism is due to entrance into the system from without of a miasm closely allied to, but quite distinct from, malaria." But the fact that, unlike malarial disease, no climate nor locality is immune from rheumatism, and that heredity exercises a marked influence upon its occurrence, opposes the miasm theory of Maclagan. Generally speaking, the decided disturbances of the nervous system accompanying rheumatic attacks are noticeable; delirium, coma, chorea and convulsions have been observed.

In young children, we observe, as is in the case of adults, that the disease frequently has no tendency to become general; one joint only may be affected, the temperature almost normal, and the perspiration not profuse nor the urine scanty.

Dr. Howard calls attention to the fact that "muscular rheumatism in the form of torticollis frequently co-exists with rheumatic affections. The diagnosis is usually founded upon the suddenness of the onset, the absence of other symptoms of nerve disease, and the rapid course of the case, with favorable prognosis."

May we not assume that many of the cases of heart troubles in the very young have had their origin in rheumatic attacks? The absence of distinct physical signs does not exclude our diagnosis of rheumatism. The joints may be neither painful, sensitive to pressure, hot, swollen, nor reddened, and yet our patient is beyond a doubt suffering from "rheumatic" disease.

For those who have experienced the peculiar pains of rheumatism, no further description is necessary than to call to mind the gradual conditions of discomfort which are such an obstinate barrier to sleep, increasing as a rising tide, slowly and surely, in all degrees, from simple pain to downright unmitigated misery.

The climax of suffering suddenly disappears, or is so diminished as to be forgotten when mind and body are interested in the daily routine of life.

In considering the treatment of these cases, that which is known as the *preventive* deserves our first attention.

The actual treatment of rheumatism in infancy as in childhood is mainly hygienic.

Medicines are, generally speaking, only useful as accessory in the carrying out of the hygienic requirements. Undoubtedly the most careful attention to the diet is of the greatest importance since the digestive system is so early in the attack thrown into disorder.

We need to immediately institute methods which will mitigate the condition of the intestinal canal, and as rapidly as possible to supply a suitable nutrient which can be easily assimilated, and which is powerful enough to decidedly afford the needed strength to bear up the patient under the continued attacks of pain, and to restore the strength lost during the preceding attacks.

To accomplish this, it is necessary to fully understand what has been the character of the food supply up to date.

Since cold and dampness are recognized as exciting causes to a large degree in a majority of cases, the externals, such as the surroundings of the house and of the section where it is situated, must also receive attention.

Even the route of the infant's daily rides in carriage, and the places *where* it is exposed to the air must be considered. Too often this is left to the caprice of the nurse or attendant.

We must ascertain what are the most noticeable mistakes in the hygienic care of the infant up to the time of the attack, and what is to be changed in the interests of health at the present moment.

To do this intelligently, the condition of the sleeping room, and indeed of the whole house, from attic to cellar, must come in for a thorough investigation.

When we consider the character of the joints in infancy, it is not to be wondered at that they can easily become the seat of inflammatory action.

The articulating extremities of the bones are imperfectly formed, the cartilaginous structure is in a condition peculiarly favorable to inflammation.

The knee, elbow, and ankle, although more likely to be attacked than any other of the joints in the body, are less generally protected.

If we will observe the legs and arms of almost any infants of our acquaintance, we will notice that they are invariably exposed to cold and to sudden changes in the atmosphere. This is more noticeable in the knee than in the elbow, and more noticeable in the elbow than in the ankle. The little undervest is most likely to be sleeveless, and the knee has no other covering than a little flannel skirt, if it has as much as that.

About the waist is the large diaper, more or less damp, and this moisture not infrequently extends to the knees.

We do not wonder that infants suffer more or less from rheumatic pains, but we do wonder that they do not suffer more. Rational clothing for infants is then pre-eminently

important. Many parents are inclined to believe that they will weaken a child by clothing it in flannel.

I have met with many sensible people who seemed possessed of the theory that children should be toughened by clothing them after the manner of North American Indians and the children of other wild tribes.

Such a theory is unreasonable.

For the protection of the body, to avoid congestion of the internal organs through sudden chilling of the surface in our changeable climate, to encourage the normal development of the bones, more particularly at the joints where growth is steadily taking place, in my opinion, a wool garment, fleece knit, such as has been suggested by Prof. Von Pettenkofer, of Munich, is absolutely desirable.

By this use of such clothing chills are prevented in cold weather, and sudden cooling after perspiration in hot weather. By such means the body is kept in the most healthful condition.

In suitable clothing, therefore, we are assisting to a very large degree in the prevention of rheumatism, kidney disease, catarrhal troubles and pulmonary consumption. The rational preventive treatment of rheumatism is, therefore, to be found in the hygiene of the home, in hygienic clothing and in wholesome food.

TREATMENT OF CONSTIPATION IN INFANTS.

I have noticed very frequently in practice that the condition of constipation in infants is one which deserves repeated caution to young mothers and those in charge of infants.

I find a variety of methods made use of to overcome this condition. Some introduce a piece of soap into the bowel, using any soap which may happen to be handy. This is a very popular remedy, and I believe is very injurious, causing considerable suffering and reflexly injuring the nervous system, making infants, for the time being at least, irritable and decidedly uncomfortable.

Almost any soap will exert an injurious effect upon the mucous membrane of the bowel.

I believe that some serious rectal affections have had their origin in this manner.

Another remedy very often employed with decidedly injurious results, is the injection of water more or less medicated.

Still another method is the injection of glycerine into the bowel.

Internally, preparations of castor oil, rhubarb, senna, etc., are used.

I have found that by attention to diet and the occasional use of small suppositories of gelatine containing boroglyceride, habits of constipation may be readily overcome without doing any harm. These suppositories I have had made for me for several years, and use them for infants, children and adults with uniform success.

It might be well in passing to call attention to the importance of inducing, even in the youngest children, the habit of regularity in opening the bowels.

The best time in the day is about a quarter of an hour after breakfast.

I have found in many families that the evening before going to bed is the chosen time, but I think this is a mistake.

It is also important that the bathroom should not be some cold, cheerless, disagreeable place; it should be well lighted and ventilated, and reasonably warm.

I have found in my practice among women, more particularly in the country, confirmed constipation had been induced by the cold, insufferably disagreeable boxes set up on end, more or less distant from the back door.

I mention this merely to show that where every obstacle is opposed to the easy carrying out of this function, constipation is extremely likely to ensue.

The hygiene of this subject deserves much more attention than it receives.

W. THORNTON PARKER, M.D.

Groveland, Mass., November 22, 1895.

Egbert Guernsey, M.D., will remove May 1st from 528 Fifth avenue to The Madrid, 180 West Fifty-ninth street, Central Park South.

LACTOPHENIN IN TYPHOID FEVER.

In a recent case of typhoid fever, and one of pneumonia, I had occasion to give lactophenin a thorough test.

In the case of typhoid fever, in doses ranging from 4 to 10 grains, repeated twice in six hours, it reduced the temperature, on one occasion, from 105½° F. to 102° F., and in another, from 104° to 101° F.; on the former the dose was 10 grains and on the other 2 grains.

The superiority of lactophenin over other drugs of its category is that it not alone reduces the temperature, but that it relieves abdominal pain, produces a quiet sleep and leaves the patient in a refreshed condition, manifested by a slight moistening of the tongue.

I have not as yet noticed any bad after effects. In the case above mentioned, it was used continuously for four weeks, the dose being gradually reduced from 10 to 2 grains, discontinuing its use only after the temperature had fluctuated between 98½° to 100° F.

In the case of pneumonia in a child four years old, it reduced the temperature from 105½° to 102° F., relieved the cough and produced sleep. The dose used was 2 grains, repeated in six hours. H. T. MILLER, M.D.

Springfield, O., Jan. 20, 1896.

SOCIETY REPORTS.

FRENCH MEDICAL SOCIETIES.

BIOLOGICAL SOCIETY.

M. Gellé described a particular form of Ménière's auricular vertigo, which is preceded by an aura like that of the great neuroses. It may assume different appearances, beginning with special sounds, hissing, crackling and roaring, and accompanied by diplopia, etc., or by nausea and vomiting, which precedes the vertiginous attack. M. Marinesco has studied the degeneracy of the nervous cells following section of the nerves, and they present two kinds: First, the colored granulations of the protoplasm, made evident by methylene blue, disappear, the axis-cylinder remaining intact. This lesion is slight, and the granulations may be re-formed. Subsequently the fibrillar protoplasm of the cell is affected, in its turn the axis-cylinders become atrophied, and the lesion is irreparable. Then the name of ascending neuritis should be replaced by that of distant neuritis. M. Laborde presented a frog, upon which a new curare, whose effects he has studied in conjunction with M. Duquesnel, exercises a preventive and curative action upon toxic tetanus.

M. Abelous produced experimental nephritis in an animal, by the direct action upon the kidneys of the nitrate of silver. He established all the physiological symptoms of uræmia, combined with gastric troubles, all of which ceased when the epithelium of the kidneys was reconstituted. M. Albert Mathieu communicated the result of his researches upon gastric digestion in the healthy subject, after the approved meal of Ewald. He determined the fact that the quantity of fluid contained in the stomach was sensibly increased at the end of half an hour, and exceeded that of the liquid previously introduced, which he attributed to the salivary and gastric secretions; the stomach then began progressively to empty itself. M. Lamy has studied the vessels of the nerve centers in syphilis. He found that the primitive lesion was always peri-vascular, especially in the arteries. When the subjects succumbed to a secondary infection he observed, on the contrary, intravascular inflammatory conditions which provoked thrombus, but these lesions belong rather to an infection of the blood than to the syphilis. M. Rénon reported the experiment upon a rabbit which became affected with Pott's vertebral disease, due to intravenous injections of the spores of the asperglillus fumigatus. The animal was taken with paraplegia, resulting from an abscess of the rachidian canal, involving the medulla, and after death the aspergillus was found in the pus of the abscess and in the vertebræ. MM. D'Arsonval and Charrin recalled the fact that they had already demonstrated the fact of the attenuation of the virulence of toxines, especially those of diphtheria and of pyocyanic

disease by the action of electric currents, and that this modification of virulence was independent of any chemical action exercised by the current. M. Oeschner de Corimck addressed a note upon the analysis of the urine of subjects of rachitis, and described his process for detecting the free and compound sulphuric acid, and the total of sulphur. M. Roger reported having observed twenty-four cases of tuberculosis in the paroquet, which shows the frequency of this disease, and that it should especially engage the attention of the hygienist from the point of view of contagion. The tuberculosis occupies the tongue particularly, hence the greater danger of its dissemination. It presents the same histological characters as the human.

ACADEMY OF MEDICINE.

Contagion of Tuberculosis in Hospitals.—M. Jaccond reported three observations of robust men, without any hereditary antecedents, who entered the hospital for wounds of the thorax, and had become tuberculous. The origin of the contagion from the hospital was absolutely certain in one of the cases, and almost certain in the other two. Since 1890, M. Jaccond had called attention to this danger, and had insisted upon the necessity of a complete separation between phthisical subjects and those affected with other diseases, which would also be more advantageous to the former themselves. Secondary inflection by the pneumococcus, streptococcus and staphylococcus, aggravates the disease, and takes away every chance of cure. All the efforts relative to the isolation of the tuberculous having been, up to this time, a dead letter, it is at least desirable to have better hospital hygiene, and particularly to suppress the dust in hospital wards. Such measures, while being acceptable and more easily realized, would afford a substantial security.

M. Duguet recalled the fact that in his hospital service the varnished floors are not swept but washed, and curtains are suppressed. The chairs and tables are so constructed that they may be washed, and their new material is much less expensive than the old. The spittoons, too, are of glass, and kept half full of water, to prevent the expectoration from drying. We here append a note by the editor of *Le Progres Medical* in relation to this subject. He says: "We earnestly beg all those who are interested in the question of hospital hygiene, to visit at Laraboisiere, the service of M. Duguet, where medical antisepsis is realized by very simple means, also very sure and economical. It is equally interesting to recall the fact that this question of hospital tubercular contagion, now being discussed by the Academy, has become an article of faith among the people. But few months have passed since we saw the employes of a large railroad company that were affected with grave diseases refuse positively to enter a hospital because it contained consumptives." M. Nocard showed by many examples the frequency of tubercular contagion. He believes that however excellent the precautionary measures against dust may be, it is very dangerous to associate tuberculous patients with those having other diseases. Prophylaxis of tuberculosis should be exercised not only in hospitals, but in common schools and other public places. M. Fèan discussed the predisposition to tuberculosis created by traumatism. He insisted upon the danger of contagion by dust of those who had been operated upon, not only of tuberculosis, but of other diseases. Besides the precautions against dust in this respect, the construction and management of hospitals are very insufficient. He believes in the excellent effects of isolation. M. Tarnier said that in saloons nothing is more difficult than protection against dust. M. Montpallier fears dust especially. He does not deny the possibility of hospital tubercular contagion, but believes it to be relatively infrequent. M. Tarnier showed how difficult it often was to establish the associations of contagion in large cities, particularly in a disease of such slow incubation and evolution as tuberculosis. In the country and the provinces the contagion is easily demonstrated. It would be most desirable that this interesting subject should be continued to be discussed at the next sitting, especially if it might result in practical modifications of hospitals.

MEDICAL SOCIETY OF THE HOSPITALS.

M. Charrin, from a recent observation of a case, distinguished the delirium accompanying Bright's disease, with cardiac complication, from the auto-toxic delirium resulting from certain hepatic affections of an infectious nature. M. Faisan reported the case of a tuberculous patient who, in consequence of an injection of 140 c. c. of oil containing 9 gr. of creosote, showed symptoms of meningitis, which disappeared in a few days. M. Burlureaux cited analogous cases, and added that the accidents observed by M. Faisan are sometimes produced, they are of a grave character, and should consequently be considered in this method of treatment. However, they are extremely rare, never mortal, and when contrasted with the benefits to be derived from this mode of administration of the creosote may not be contra-indicated, nor are they ever produced when the doses are diminished, but then the results are less certain. M. Faisan is convinced that the accidents mentioned by him are not sufficient to contra-indicate his method, but it is important to know whether or not the method is good. There is a tendency to administer creosote to all tuberculous patients; in many it seems to be contra-indicated and hurtful; he has seen marvelous results from the use of cod liver oil in large doses. M. Ferrand saw two cases in which the administration of creosote was deplorable. M. Lereboulet: It is certain that creosote is only suited to the forms of phthsis that are slow, torpid and scrofulous. it is contra-indicated where there is a tendency to congestion or hemorrhage, and when the patient is subject to hemoptysis. Except in such cases creosote is a very good remedy, not a specific, but adjuvant to the other hygienic means that are generally accepted.

SURGICAL SOCIETY.

Extra Uterine Pregnancy.—M. Chaput distinguished the different forms of extra uterine pregnancy, as indicated by M. Segond, and explained his method of solving the different conditions of which this affection is susceptible, and also of becoming the subject of surgical interference.

M. Bouilly shared the opinion of MM. Picquè and Segond. The discussion considered two points, especially the difficulty of diagnosis, and the treatment of the different cases that present themselves. After the expiration of three months, the difficulties of diagnosis disappear before the clear indications for operative interference; the same when rupture has occurred. Then prompt action is necessary. Hemorrhage, with slight effusion, may occur, and be accompanied by grave phenomena, which may cause errors of diagnosis and of treatment, and also the performance of a useless laparotomy. In other cases, intervention does not seem to be indicated, as when there is a hemato salpinx, but under these circumstances, the diagnosis is ordinarily easy, as the symptoms are prominent. After rupture, the blood that has escaped into the peritoneal cavity undergoes few modifications, the same after four months, so it is not necessary to depend too much upon the spontaneous reabsorption of the effusion. Extra uterine pregnancy, in process of evolution, should be removed, as though it were a tumor, whatever the date of the pregnancy may be. M. Chaput reported a case in which cholecystenterostomy was performed. It occurred in a woman who had an intense icterus; diagnosis, biliary occlusion without dilatation of the vesicle; laparotomy; vesicle contracted upon a calculus; cholecystenterostomy on the convex surface. Murphy's button was tried, but the vesicle being too small, suture was substituted: cure; ten months after the patient continued well. M. Chaput insisted upon the advantages of the lateral incision in operations upon the biliary passages. Every operation that overcomes biliary stasis, is a means whereby the biliary passages are aseptised. Cholecystenterostomy produces this effect, which heretofore has been credited to cholecystostomy, and it has the advantage of not causing a persistent infirmity. M. Quénu insisted upon the advantages of the median incision, which can be enlarged by another made horizontally. The exploration of the choledochus is certainly useful. M. Terrier: Much might be said upon M. Chaput's

communication. He has proposed a number of problems, which he has not solved; an anastomosis should be made wherever it is possible, with the stomach, if one can do nothing better. When the bile is infected, it is difficult to know what is best to do, no conclusions can be established, because we are not sufficiently informed to make them. The incision in the L form removes all difficulties, and the adipose condition of the patient should be taken into account. M. Chaput: The lateral incision seems to be preferable. M. Quénu presented cultures obtained from the fluid of hydatid cysts of the liver. A patient had gastro-intestinal symptoms, caused by hydatid cysts of the liver; it was punctured. Inflammation supervened, and laparotomy became necessary. The fluid contained bacterium coli, from the biliary passages. M. Michaux reported a similar observation; the biliary passages were in direct communication with the interior of the cyst. M. Terrier also cited an analogous case.

SOCIETY OF HYPNOLOGY AND PSYCHOLOGY.

M. Wolff, in the name of M. Milne-Brammell, read before the Society a paper upon the cure of obsessions by suggestion. M. Berillon presented a case of passional obsession, successfully treated by suggestion. The patient, aged thirty-seven years, had been abandoned by his wife, and since her departure he became possessed with the desire to recover her. He lost his appetite and sleep, and made several attempts to commit suicide, and from having been previously sober, he took to drink and consumed from twelve to fifteen glasses of absinthe daily. His very great susceptibility was utilized for his treatment, and after certain suggestions, while in a hypnotic condition, he was relieved of his emotional ideas as well as of his intemperance. It may be remarked that the patient was in such a condition of mind as prepared and impelled him to the commission of crime. M. Aug. Voisin observed at La Saltpetrière a rapid cure by suggestion, of a case of lypemaniac insanity, with hallucinations and ideas of persecution, during the course of a broncho-pneumonia.

The patient became affected with aphasia, agraphia and verbal incompetency, all of which disappeared as the result of treatment. This observation is interesting, as it is in opposition to those who deny the utility of psychopathy in insanity. M. Berillon called the attention of the Society to a miraculous cure of sycosis, the observation of which was communicated by Prof. Kogevnikoff to the Society of Neurology and Psychiatry of Moscow. A bacterial affection, considerably developed, and that had resisted treatment for nine months by eminent specialists, rapidly disappeared from auto-suggestion. M. de Schrenck-Notzing reports in minute detail three observations of hereditary homosexuality, cured by hypnotic suggestion, the cure lasting for three or four years. The following were the gradual purposes of the suggestion: First, to combat homo-sexual sensations; second, to produce hetero-sexual sentiments; third, to promote the habit of coitus; fourth, to induce these unfortunates to marry, in order to materially confirm the new habit and the new social conditions, and thus prevent relapse. It was necessary to repeat the hypnotic experiments 204 times to effect the cure in two cases of married individuals, and 142 in others. J. A. C.

TRANSLATIONS, GLEANINGS, Etc.

RETROSPECTIVE THERAPEUTICS.

By Alfred K. Hills, M.D., Fellow of the Academy of Medicine, New York.

Abortive Treatment of Syphilis.—Larrieu (*Rev. de Therapeutique Med.-Chirurg.*, 62 Annee) states that under the treatment he describes he has never seen secondary symptoms follow a chancre. First, superficial cauterization of the chancre is practised by means of Vienna paste. Second, rubbing the mercurial ointment into the groins. Third, the taking, for thirty-five days, of three to five drops of tincture of iodine every morning.

Cold Bathing During Menstruation.—Dr. Depasse (*Gaz. de Gynecologie*) says cold bathing during menstruation is a beneficial measure, provided women accustom themselves to the treatment by bathing every day for at least eight days before the arrival of the period, when they can continue during the menstrual flow without any danger. In the case of a very anæmic girl, in whom this treatment was instituted, it gave most satisfactory results. Houzel, before the recent Boulogne congress, held that cold salt water baths facilitate the menstrual flow, increase the duration of genital life, and likewise increase fecundity in a remarkable manner.

Treatment of Diphtheria with Behring's Serum.—After treating a large number of cases at the Mariahiefer hospitals of Aix-la-Chapelle, F. Wesener (*Muench. Med. Woch.*, 1895, 853 and 883), in an excellent paper, in which a large number of cases are well observed and analyzed, comes to the following conclusions (*Pedriatics*):

In simple pharyngeal diphtheria, serum therapy alone will do no more than a properly applied local treatment, nor will it do less. It prevents apparently the extension of the process to the larynx better than local treatment, but it does not prevent with certainty the occurrence of sepsis.

In laryngeal diphtheria a tracheotomy or other treatment for stenosis is somewhat less frequently necessary with the serum treatment than with other methods.

In laryngeal diphtheria the serum treatment prevents the extension of the disease to the trachea and bronchi better than any known remedy. If, however, these parts are already involved, it is very doubtful if the serum will be of benefit.

When sepsis is present, serum will be of little benefit, even less than other methods of treatment.

It is not positively established that serum has immunizing powers.

The serum treatment is not harmful.

New and Successful Treatment of Acne Pustulosa.—Dr. Samuel G. Dixon, of Philadelphia, reports in the *Medical World* a distressing case of acne pustulosa successfully treated by him with new agents. The entire neck and face were involved, and the discharge from the pustules terribly annoying. The trouble was of six years' duration, and all treatment had failed to give relief. The author, after making his examination, thought that it might be possible to so change the general or special metabolism in this case, possibly stimulating it here or retarding it there—he cannot exactly say in what way or to what degree—that the factors which kept up the inflammatory condition of the skin and its glands would become inactive, and the disease thus cease for want of a cause. The treatment adopted in accordance with this idea was as follows: 0.4 c.c. of a saturated solution of taurin diluted with three parts of alcohol were injected hypodermically into the left arm, and two days later twice this quantity, not so much diluted, was administered in a similar manner. The only instructions given to the patient were that he should observe the same precautions as to diet as had been advised by his former physicians, and that twice a day he should bathe his face and neck with water as warm as could be borne, in order to remove the discharges from the skin as rapidly as possible. Eight days after the first injection a decided improvement in the patient's condition was noticeable. The pustules were not discharging so freely, and the inflammatory condition of the face had markedly subsided. He stated that his appetite was improved, that his constipation was gone, his bowels moving regularly and easily every day, and that he was feeling better in every way. At this time 1.5 c. c. of a saturated solution of taurin and thiosinamin combined were administered, and similar injections were made several times subsequently at brief intervals (from four days to about a week). After three months of this treatment not a single active pustule was to be found, and the patient remained free from the disease. A diluted solution of the remedies was then applied locally twice a day, and the skin was improving in smoothness and color. The injections were nearly all made in the left arm. The taurin used was prepared by the author from the bile of

dogs. The solvent used for both agents was alcohol.* The author believes that while the cure was probably materially hastened by the use of the thiosinamin, good results would have been had with the taurin alone, for improvement was noticeable at the very beginning of treatment, when it was employed by itself and in diluted solutions.

Phthisis Cured by Strychnine.—The following case, described by Dr. William Pepper, in the *University Medical Magazine*, December, 1895, is remarkable as having recovered apparently under the influence of remedies acting almost entirely upon the nervous system, thus tending to confirm Dr. Thos. J. May's theory of the origin of consumption. Strychnine nitrate (1-1000 of a grain) with atropine sulphate (1-1000 of a grain) was administered every two hours hypodermically, together with strychnine nitrate (1-50 of a grain) and the double chloride of gold and sodium (1-12 of a grain) by mouth every two hours. After a few days the dose of the latter was increased (1-8 of a grain). Egg albumen was well borne, and this was increased until two dozen eggs (whites) were consumed per day. Cod liver oil inunctions and passive massage were employed once daily. When the patient showed signs of strychnine intoxication the dose was reduced. Dr. Pepper concludes as follows:

"Noteworthy points in this case are: The sudden onset, quite like general miliary tuberculosis; the large number of bacilli; the rapid recovery, all the more remarkable with a pronounced tubercular family history; the complete disappearance of consolidation and bacilli; the acute reappearance after two years of the whole train of symptoms, with signs in the base of the left lung, directly following an attack of pneumonia located in that vulnerable part; the large number of bacilli and their early complete disappearance in the second attack; the abatement of the consolidating process, and rapid recovery of the general health after the second attack; the absence from the treatment of all cough medication and antiseptics, and the large doses of strychnine nitrate and the double chloride of gold and sodium, with which the system was kept literally saturated."

Cold Applications in Pneumonia.—The rationale of this treatment is thus explained by Dr. Thomas J. Mays, in the *Times and Register* of December 7, 1895:

"The therapeutic indications in the management of pneumonia are, therefore, as follows: (1) Suppression and limitation of the process of exudation. (2) Support of the nervous system, and particularly of the pulmonary nerve supply. (3) Reduction of fever, and (4) maintenance of the function of the heart.

"Now, what part does cold play in filling these indications? It cannot fill them all, but it covers those of greatest importance. First of all it reduces the pyrexia, strengthens the pulse, tones up the heart, diminishes the pain in the chest, alleviates difficulty of breathing, and gives greater general comfort to the patient. It is capable, however, of doing a great deal more. In virtue of its power to stimulate nerve functions, and to contract small blood vessels, it promotes the pulmonary circulation, relieves stasis, hasten resolution, and disperses the products of exudation. Strychnine in large doses to sustain respiratory and cardiac innervation; concentrated food of the most nourishing character, like fresh beef juice, milk, brandy, etc., to support the constitution; digitalis to maintain the heart; oxygen by inhalation to relieve the breathing; morphine to produce sleep; ice-cap to the head to diminish restlessness; and strapping of the chest in case of great pleuritic pain, are some of the agents which will fill most of the remaining indications."

E. Guernsey Rankin, M.D., will remove May 1st to The Madrid, 180 West Fifty-ninth street, Central Park South.

A law has been passed in this State raising the course of medical students to four years, and allowing students who have entered college to be graduated under the rules in force when they matriculated.

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* This must be a mistake, as taurin is insoluble in alcohol.

RETROSPECTIVE DIETETICS.

Spices as a Cause of Hemorrhoids.— A writer in the *Doctor of Hygiene* says: The Dutch custom houses of Java shed an important light upon most of the unknown and unstudied natural laws involved in the cause and cure of hemorrhoids. In order to perpetuate the high commercial repute of spices and other products of that island, the government usurps an absolute control over them, at least, so far as regards their purchase and sale. It monopolizes the purchase of the whole product, and prohibits the natives from selling anything whatever to strangers. Prior to exporting everything is rigorously inspected. The inspection of spices requires that they should be tasted. Knowing that their juices are poisonous, the inspectors never swallow the minutest particle of them, but immediately eject them from the mouth. Nevertheless, after a certain length of official service, these spice inspectors become the victims of the most aggravated cases of piles which have ever been known to the medical profession. Although no fragment of spice is swallowed, the current of saliva forever passing from the mouth to the stomach carries with it enough of the irritating juices of the spice to fearfully disturb and derange the whole alimentary canal. A prolapsus of the rectum ultimately ensues, extending sometimes four or five inches, exposed surfaces highly inflamed, and intensely sensitive to the touch.

The simple and negative system of cure they adopt is to withdraw from duty and to observe a strict abstinence from the tasting of spice. Without other remedy, the patient after some months is cured, and returns to duty, but only to relapse from the same cause after a time into the same malady. He thus oscillates between health and disease during his entire official existence, which we cannot suppose is distinguished for its longevity.

Poisoning from Dried Beef and Pressed Chicken.— Two cases of poisoning from decomposing animal food have recently occurred in Michigan (*Mod. Med.*). Both cases were reported to the State Board of Health, and placed in the hands of Prof. Vaughan, Superintendent of the Laboratory of Hygiene at Ann Arbor, for investigation.

In one of these cases a number of persons residing at Somerset Center, Hillsdale County, were poisoned by eating dried beef. Prof. Vaughan reported at the last meeting of the State Board of Health that he found on investigation that the meat contained a small germ, which, when injected under the skin of rats, guinea-pigs and rabbits, produced death in twenty-four to forty-eight hours.

In the other case of poisoning, which occurred at Sturgis, 200 hundred persons who ate of pressed chicken at a banquet were poisoned. The bacteriological study of the sample of chicken sent for investigation showed that it contained germs which, when injected into guinea-pigs, produced death, although they were not sufficiently virulent to kill rats.

Cases of this kind are becoming more and more frequent, indicating very clearly that persons who use flesh food must, under all circumstances, use extraordinary care to avoid serious or even fatal poisoning.

Diet in Tuberculosis.—Dr. T. J. McGillicuddy, in a paper read at a recent meeting of the New York Academy of Medicine (*Am. Med. Rev.*), advocated feeding and exercise in tuberculosis. His plan consists in giving at rather frequent intervals a considerable quantity of carefully roasted or boiled beef or mutton, raw eggs, stale bread, butter, sterilized milk and vegetables. After a few days of treatment the meat should not be less in amount than a pound a day, and the quantity of bread and vegetables should be even, if possible, somewhat larger. When there is a disgust for the meat diet the stomach needs special treatment, for a short time only, by the addition of a digestant, such as dilute hydrochloric acid and hot water to remove irritations. Exercise is added.

Digestible Food.—One of the biggest mistakes about food which people make, says the *London Hospital*, is to forget that the true value of food to anybody is in the measure of its digestibility. Half a pound of cheese is vastly more nourishing, as regards its mere components,

than half a pound of beef, but while the beef will be easily digested, and thus be of vast service to us, the cheese is put out of court altogether for ordinary folks by reason of its indigestibility.

Food Value of Soup.—A French authority, M. Furitieres, says that soup, taken at the commencement of a dinner, causes distention of the stomach, most harmful to a proper assimilation of the solids that follow, and he endeavors to show that in the soup there is little or no nourishment. It is absurd, however, to assert that the stronger and richer purees do not contain a large amount of nutrition. They are, in fact, a meal by themselves, should be treated as such, and not be followed by other food, except, perhaps, a light repast of vegetables.

Enuresis of Over-Feeding.—According to Dr. J. P. Cobb, a very common cause of enuresis is the pernicious habit of feeding children too much proteid food. An excess of proteid food is not made use of by the system, but taxes the digestive organs to put it into less highly organized forms, to reduce it to excretory compounds. Much of this excess is eliminated by the kidneys as partially reduced peptones, imperfectly oxidized urates and allied compounds. A urine overloaded with these solids causes an unduly irritable bladder, the intrinsic nerve mechanism is subjected to unusually irritating impressions, and the reflex action of the lumbar center is more frequently and persistently invoked.

Ray Progress.—Thomas A. Edison* has at last announced the name of the new material which he has found desirable to use for fluorescent screens. It is tungstate of calcium, and it was selected out of all the chemicals in the laboratory after a long and careful process of experimentation and selection. The apparatus which Mr. Edison is using at present is simple. He has made a sort of field glass out of an old stereopticon, fitting it closely to the eyes, so that no light can percolate through around the edges, and in place of the usual object lenses he uses a plate of fluorite, against which is placed a sheet of paper covered with the tungstate of calcium in the crystalline form. The crystals used are of small size, about half as large as the usual crystals of granulated sugar. Armed with this apparatus, he places any desired object between himself and the Crookes tube, and is thus able to see the picture of the object on the fluorescent paper. He has seen the bones of a man's hand, held up in front of the Crookes tube at a distance of fifteen feet.

Mr. Edison maintains that the physician of the future can study the internal organs of his patients at leisure by this wonderful invention. He suggests that a light-proof box be made, with the side next to the Crookes tube of quarter inch boards, and this entire side of the box covered with the screen of tungstate of calcium. The patient will be placed between the Crookes tube and the box, and the physician, entering the latter, can study the internal economy of his patient at his leisure. Mr. Edison says that he is about to institute a series of experiments to ascertain the effect of the X rays on the bacilli of disease, notably those of tuberculosis and diphtheria.

Nikola Tesla says in the *Electrical Review* that: I am producing strong shadows at distances of forty feet. I repeat, forty feet, and even more. Nor is this all. So strong are the actions on the film that provision must be made to guard the plates in my photographic department, located on the floor above, a distance of fully sixty feet, from being spoiled by long exposure to the stray rays. * * * Even now I see before me the possibility, not to say certitude, of augmenting the effects with my apparatus at least tenfold! What may we then expect? We have to deal here, evidently, with a radiation of astonishing power, and the inquiry into its nature becomes more and more interesting and important. Here is an unlooked-for result of an action which, though wonderful in itself, seemed feeble and entirely incapable of such expansion, and affords a good example of the fruitfulness of original discovery.

The effects upon the sensitive plate at so great a distance I attribute to the employment of a bulb with a single terminal, which permits the use of practically any desired potential and the attainment of extraordinary speeds of the projected particles. With such a bulb it is also evident that the action upon a fluorescent screen is proportionately greater than when the usual kind of tube is employed, and I have already observed enough to feel sure that great developments are to be looked for in this direction. I consider Roentgen's discovery of enabling us to see, by the use of a fluorescent screen, through an opaque substance, even a more beautiful one than the recording upon the plate.

Since my previous communication to you I have made considerable progress, and can presently announce one more result of importance. I have lately obtained shadows by reflected rays, only thus demonstrating beyond doubt that the Roentgen rays possess this property. One of the experiments may be cited here. A thick copper tube, about a foot long, was taken, and one of its ends tightly closed by the plate-holder containing a sensitive plate, protected by a fiber cover as usual. Near the open end of the copper tube was placed a thick plate of glass, at an angle of forty-five degrees to the axis of the tube. A single-terminal bulb was then suspended above the glass plate at a distance of about eight inches, so that the bundle of rays fell upon the latter at an angle of forty-five degrees, and the supposedly reflected rays passed along the axis of the copper tube. An exposure of forty-five minutes gave a clear and sharp shadow of a metallic object. This shadow was produced by the reflected rays, as the direct action was absolutely excluded, it having been demonstrated that even under the severest tests with much stronger actions no impression whatever could be produced upon the film through a thickness of copper equal to that of the tube. Concluding from the intensity of the action by comparison with an equivalent effect due to the direct rays, I find that approximately 2 per cent. of the latter were reflected from the glass plate in this experiment. I hope to be able to report shortly and more fully on this and other subjects.

I am finding more and more evidence in support of the theory of moving material particles * * * I have already a great many indications of a bombardment occurring outside of the bulb, and I am arranging some crucial tests which, I hope, will be successful. The calculated velocities fully account for actions at distances of as much as 100 feet from the bulb, and that the projection through the glass takes place seems evident from the process of exhaustion, which I have described in my previous communication. An experiment which is illustrative in this respect, and which I intended to mention, is the following: If we attach a fairly exhausted bulb containing an electrode to the terminal of a disruptive coil, we observe small streamers breaking through the sides of the glass. Usually such a streamer will break through the seal and crack the bulb, whereupon the vacuum is impaired; but if the seal is placed above the terminal, or if some other provision is made to prevent the streamer from passing through the glass at that point, it often occurs that the stream breaks out through the side of the bulb, producing a fine hole. Now, the extraordinary thing is that, in spite of the connection to the outer atmosphere, the air cannot rush into the bulb as long as the hole is very small. The glass at the place where the rupture has occurred may grow very hot—to such a degree as to soften; but it will not collapse, but rather bulge out, showing that a pressure from the inside greater than that of the atmosphere exists. On frequent occasions I have observed that the glass bulges out and the hole through which the streamer rushes out becomes so large as to be perfectly discernible to the eye. As the matter is expelled from the bulb the rarefaction increases and the streamer becomes less and less intense, whereupon the glass closes again, hermetically sealing the opening. The process of rarefaction, nevertheless, continues, streamers being still visible on the heated place until the highest degree of exhaustion is reached, whereupon they may disappear, Here, then, we have a positive evidence that the matter is being expelled through the walls of the glass.

*New York *Tribune*.

MISCELLANY.

—We promise as our hearts dictate—we perform as our fears advise.

—In order to succeed in the world one must make a show of success.

—Washington, Byron and Cavour, were all bled to death by their physicians.

—Dr. Thomas Keith, the distinguished ovariotomist, died recently in London.

—If on the first day the temperature rises to 105°-106°, the fever is neither typhoid nor typhus.

—The more faults we ourselves possess, the better it pleases us to remark on those of others.

—WARTS.—Cover them with a solution of salicylic acid, 1 part; lactic acid, 1 part, and collodion. 2 parts.

—It is said a spray composed of 1 part icthyol and 100 parts ether and alcohol acts as a specific in acute coryza.

—You need not tell all the truth unless to those who have the right to know it all. But let all you tell be the truth.

—The dangers of chloroform are met with on the operating table; those of ether, after the operation is completed.

—Cardinal Richelieu is said to have been the first chocolate drinker of any fame, and to have set the fashion of using it.

—The Esquimaux gives the doctor his fee as soon as he comes. If the patient recovers he keeps it; otherwise he returns it to the family.

—Dr. Homer I. Ostrom has opened a private hospital for the treatment of surgical, diseases at 127 West Forty-seventh street, New York.

—When a patient complains of dull pain at the back of the head, with lassitude and despondency, he probably suffers from excess of phosphates in the urine.

—A death is reported as having occurred at Guy's Hospital, from the use of nitrous oxide and ether. The patient was a married woman, aged twenty-six.

—Says the *Medical Record:* "The best symptom in any patient is prompt pay; as long as it lasts you need not care what else ails him, unless he is likely to die."

—The Illinois Supreme Court has decided that physicians cannot be compelled to report contagious diseases or render other services to the public without pay.

—Dr. J. A. Cantrell (Philadelphia *Polyclinic*) says that an ointment of 15 per cent. of salicylic acid in lanolin or petroleum, applied for three days, then curet the part, will cure warts.

—Sir Benjamin Ward Richardson says he has no doubt that, if men and women in general properly understood and steadily obeyed the laws of their being—physical, intellectual and moral—70 per cent. of them would reach the age of 110 years.

—Prof. Carl Barns has utilized the principle of the Æolian harp in computing the velocity of the wind from the pitch of the note observed in case of a given diameter of wire and temperature of the air.

—Cotton-root bark, exhibited in doses of 20 to 30 minims of the fluid extract, for several days, is said to be an excellent preventive of bleeding at the nose, spitting of blood, voiding blood in the urine, etc.

—Coester states that catheters or other vulcanized rubber articles, hard or soft, may be preserved for many years, or indefinitely, in fact, by keeping them immersed in a 3 per cent. solution of carbolic acid.

—The cities of New York and Berlin issue cards to physicians for the purpose of enabling them to pass unhindered through a cordon of police. This example has been followed by the City of Paris.

—A prescription for a hair tonic for an Egyptian queen, dated 4,000 B.C., has recently been deciphered. It directs that dogs' paws and asses' hoofs be boiled with dates and oil—about as sensible as some of ou modern prescriptions.

—Dr. Vassoli, in the *British Gynæcological Journal,* reports a case of six children at one birth. All the fœtuses were born alive and moved vigorously. The sexual organs were differentiated, four being males and two females.

—It was recently decided by Judge Smith, at the United States Circuit Court, in session at Battle Creek, Mich., that a physician's relations to his patients are not sacred, and that he can be compelled to testify in regard to the ailments with which his patient is afflicted.

—Dr. Coleman, of Columbus, in an address before the Legislative Committee of Ohio on the Kimmel Bill, gives the following statistics of the medical profession in the State: "Number of physicians 9,000, of whom 6,814 are regular physicians; 1,999 Eclectic; 678 Homœopathic; 150 physo-medical and 757 unclassified."

—Among the new alkaloids exhibited at the February meeting of the American Chemical Society in this city, were pure colorless crystals of calycanthine, the first perfectly colorless ones ever produced. They look exactly like diamonds, and refract light with all the beauty of the diamond. No other known artificially produced crystals have any such beauty.

—*Apropos* of woman's limitations as a doctor, the late Dr. W. C. Van Bibber, of Baltimore, used to tell this story: Awakened late one night by a ring at his bell, he called down the speaking-tube to know who it was. "It's I, doctor, Mr. ——. I want you to come at once to my wife. She is in labor." "Yes, but I don't attend your family. Why don't you go for your own physician?" And back came the reply: "I did, doctor—but she's about to be confined herself."—*Boston Medical & Surgical Journal.*

—In the forty-ninth registration report of Massachusetts the compiler presents the statistics of 203 persons who were reported as having died during the ten years 1881-90 at the age of one hundred and over. Of this number, 153, or 75.4 per cent. were females. By the State census of 1885, the number of females living over eighty years of age was nearly double that of males. The greater exposure of men to accidents, to weather agencies, to the constant strain of business life, to the anxiety of providing for a family, all tend to shorten the life of men.

—The date fixed for the next International Medical Congress, to be held at Moscow, is the week beginning August 19th and ending August 26, 1897. The Acting President will almost certainly be Prof. Klein, Dean of the Faculty of Medicine in the University of Moscow. Prof. Erisman, who holds the chair of Hygiene, has been elected General Secretary. Papers and discussions must be in either the French or German language; Russian has been excluded lest the Congress should become national rather than international, and English on the ground that it is a language little used or understood by other than Englishmen.

—The Directors of the Post-Graduate Medical School and Hospital have named one of their wards in memory of the late Dr. Charles Carroll Lee, who was for many years a professor in the institution. They have placed a tablet in the ward, giving the names of those who combined to contribute the $10,000, which was given for the purpose of the memorial. These names are as follows: Dr. Robert Abbe, Dr. L. Bolton Bangs, Mrs. James Beales, Dr. Stephen S. Burt, Miss Caldwell, Dr. Charles L. Dana, Dr. Bache McE. Emmet, Dr. George H. Fox, "A Friend," Dr. Horace T. Hanks, Mr. and Mrs. Eugene Kelly, Mr. and Mrs. Henry J. Lamarche, Dr. Daniel Lewis, Mr. and Mrs. William Lummis, Mr. and Mrs. Frank A. Otis, Dr. Clarence C. Rice, Mr. Eli K. Robinson, Mr. Nelson Robinson, Dr. D. B. St. John Roosa, Mrs. Eliza M. Sloan, Dr. Andrew H. Smith, Mrs. M. E. Sparks, Dr. Reynold W. Wilcox. It will be seen that the faculty of the institution participated largely in the memorial gift.